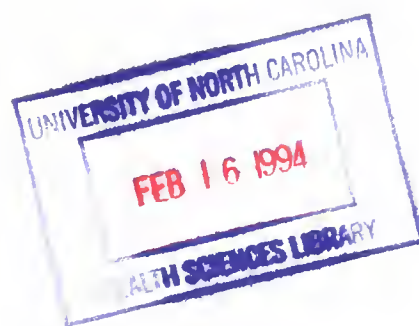


UNIVERSITY OF NORTH

FEB 16 1991

SCIENCE LIBRARY



RECEIVED
FEB 10 1967

100 81 847

RECEIVED
FEB 10 1967

The
Official Journal
of the
North Carolina
Medical Society
July 1993
Volume 54
Number 7

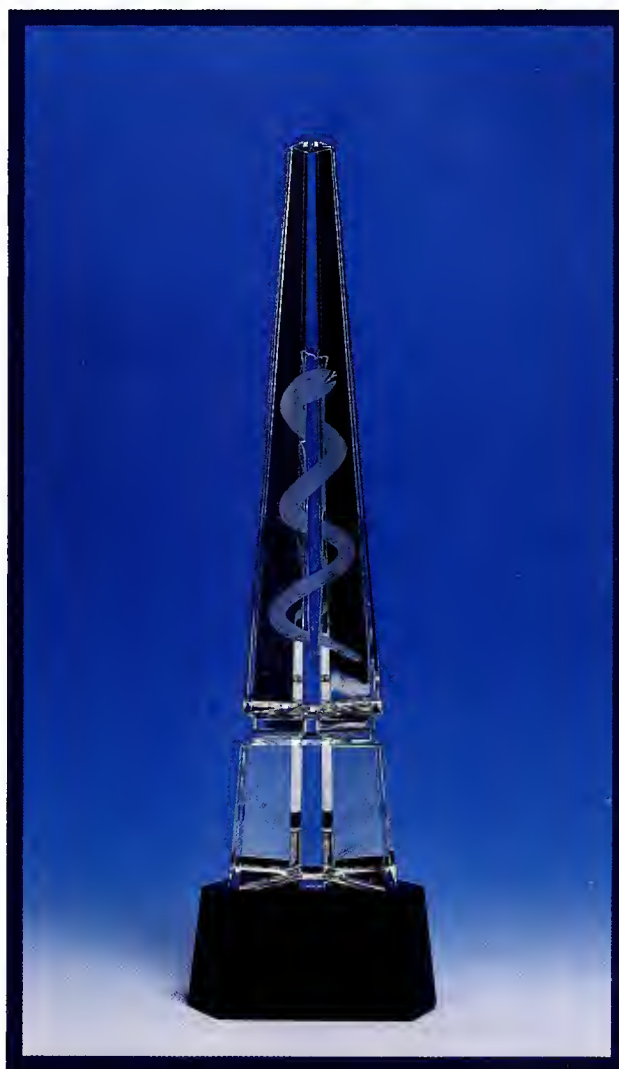
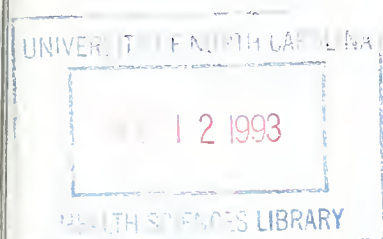
CH HEALTH SCIENCES LIBRARY



H00164442L

North Carolina Medical Journal

For Doctors and their Patients



Durham, City of Medicine, USA

Part 3: The City of Medicine Awards Program and the Future

by James E. Davis, M.D.

Fiscal fitness.



Improve the health of your practice with more efficiency and less paperwork.

Wouldn't you prefer to spend more time practicing with patients and less time practicing on paper?

IBM is building new, healthier relationships with all kinds of small businesses. Together with an IBM Business Partner who specializes in healthcare industry software, we'll listen to your needs and analyze your current system. Then, working closely with you, we'll create a customized solution that fits your hardware, your budget and your practice. No matter what size practice it is.

From insurance to recordkeeping, payroll to reporting, we'll help you unclog your system's arteries and keep the information flowing. We even have solutions that let you establish direct electronic links with your patients' insurance companies, so that claims and payments can be processed faster. And the IBM system you install today can keep pace with all the growth spurts your practice goes through.

Put IBM and an IBM Business Partner to work for you. And keep your practice in the best of health.

IBM Corporation
Carolinas Trading Area
1 800 662-7900



NORTH CAROLINA MEDICAL JOURNAL

For Doctors and their Patients

Published Monthly as the Official Organ of the North Carolina Medical Society

July 1993, Volume 54, Number 7

(ISSN 0029-2559)

EDITOR

Francis A. Neelon, M.D.
Durham
919-286-6409

DEPUTY EDITOR

Edward C. Halperin, M.D.

CONSULTING EDITOR

Eugene A. Stead, Jr., M.D.

ASSOCIATE EDITORS

Eben Alexander, Jr., M.D.
Winston-Salem
William B. Blythe, M.D.
Chapel Hill
F. Maxton Mauney, Jr., M.D.
Asheville
Walter J. Pories, M.D.
Greenville

MANAGING EDITOR

Jeanne C. Yohn
Durham
919-286-6410
fax: 919-286-9219

EDITORIAL ASSISTANT

Jane Whalen

SECTION EDITORS

Eugene W. Linfors, M.D.
Daniel J. Sexton, M.D.

BUSINESS MANAGER

George E. Moore
Raleigh

EDITORIAL BOARD

Margaret N. Harker, M.D.,
Morehead City, **CHAIR**

MEMBERS

Jay Arena, M.D.
Durham
William B. Blythe, M.D.
Chapel Hill
Jack Hughes, M.D.
Durham
Timothy W. Lane, M.D.
Greensboro
Eugene S. Mayer, M.D.
Chapel Hill
Walter J. Pories, M.D.
Greenville
Robert W. Prichard, M.D.
Winston-Salem
Mary J. Raab, M.D.
Greenville

The Society is not to be considered as endorsing the views and opinions advanced by authors of papers delivered at the Annual Meeting or published in the official publication of the Society.—*Constitution and Bylaws of the North Carolina Medical Society*. Chap. IV, Section 3, pg. 4.

NORTH CAROLINA MEDICAL JOURNAL

Box 3910, Duke University Medical Center, Durham NC 27710, (919-286-6410/fax: 919-286-9219), is owned and published by The North Carolina Medical Society under the direction of its Editorial Board. Copyright© 1993 The North Carolina Medical Society. Address manuscripts and communications regarding editorial matters, subscription rates, etc., to the Managing Editor at the Durham address listed above. Listed in *Index Medicus*. All advertisements are accepted subject to the approval of the Editorial Board of the North Carolina Medical Journal. The appearance of an advertisement in this publication does not constitute any endorsement of the subject or claims of the advertisement.

Advertising representatives: United Media Associates, Karl Messerly, 16 Bruce Park Ave., Greenwich CT 06830; 203-661-9702; and Don French, Box 2093, Cary NC 27511; 919-467-8515.

Printing: The Ovid Bell Press, Inc., 1201-05 Bluff St., Fulton MO 65251.

Annual subscription (12 issues): \$17 (plus 6% tax in NC = \$18.02). Single copies: \$2. Second-class postage paid at Raleigh NC 27601, and at additional mailing offices. **POSTMASTER: SEND ADDRESS CHANGES TO THE NORTH CAROLINA MEDICAL SOCIETY, 222 N. PERSON ST., RALEIGH NC 27601.**

Winchester®

Surgical Supply Company

Physician/

Hospital/

Home Care Supplies

3333 North Tryon Street
P.O. Box 35488
Charlotte, NC 28235
704/372-2240
800/874-2240

"Serving The Medical Profession Since 1919"

**Medical ♦ Surgical ♦ Laboratory ♦ Diagnostic
Equipment and Supplies**

Winchester Home Healthcare

Medical Supplies And Equipment For Your Patients At Home
Charlotte, North Carolina
704/332-1217

North Carolina Medical Journal

FOR DOCTORS AND THEIR PATIENTS

Contents / July 1993, Volume 54, Number 7

Cover: Each year, Durham's City of Medicine Program awards this handcrafted Baccarat crystal statuette to members of the medical community in honor of their significant achievements in medicine. See Part 3 of Dr. Jim Davis's series on the Program on page 346.

CASE REPORT

- 308 Cat Germs! Pleuropulmonary Pasteurella Infection in an Old Man
Jeffrey M. Kopita, M.D., David Handshoe, M.D., Peter S. Kussin, M.D., and Mark Kelemen, M.D.

PHYSICIANS' ROUNDTABLE: ETHICS

- 312 Physician-Assisted Suicide and Advance Directives Concerning Life Support

JOURNALISTIC ENDEAVORS

- 323 Abstracting Journal Articles: A Personal Experience *Richard T. James, Jr., M.D.*
326 *Mediphors*: A New Literary Journal for the Health Sciences *Doris M. Iarovici, M.D.*

HEALTH WATCH

- 329 Family Violence: Child Abuse *Joan S. McAllister, M.S.W.*

THE SPECTRUM OF DISEASE

- 334 Lung Cancer in North Carolina
Barbara K. Rimer, Dr. P.H., Dale Herman, M.S.P.H., Jeffrey Crawford, M.D., and Susan Blackwell, P.A.-C

SCREENING FOR DISEASE

- 342 Screening for Cervical Cancer: Pap Smears Can Save Lives *Jeffrey G. Wong, M.D., and John R. Feussner, M.D.*

FIRST-PERSON CAROLINA HISTORY

- 346 Durham, City of Medicine, USA: Part 3—The City of Medicine Awards Program and the Future *James E. Davis, M.D.*

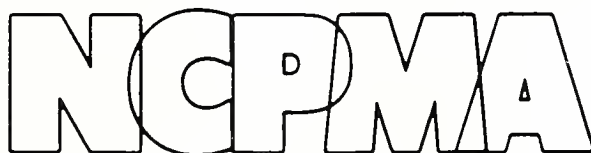
LEGAL ISSUES

- 352 Doctors, Lawyers, and Personal Injury: Separating Myth from Fact *Tracy Kenyon Lischer, J.D., Ph.D.*

BULLETIN BOARD

- | | |
|--------------------------------------|----------------------------------|
| 304 Letters to the Editor: Readers | 328 Subscription Form |
| Respond to "Mammogram Revisited," | 357 New Members |
| 306 In Appreciation, Sensitivity vs. | 358 Continuing Medical Education |
| Specificity, TV Tales | 359 Classified Advertisements |
| 306 Pearl of the Month | 360 Aphorisms of the Month |
| 322 Instructions to Authors | 360 Index to Advertisers |

WHAT HAVE OVER 2000 NORTH CAROLINA PHYSICIANS DISCOVERED ABOUT THEIR PRACTICE?



North Carolina Practice Management Association

These 2000 physicians rely on experienced members of the North Carolina Practice Management Association network to manage their practices. Our members are experienced advisors who work exclusively with the health care professionals of our state.

Our consultant members understand that medical skills alone are no longer the key to success. We understand the complexity and uniqueness of the ever changing health care environment.

The services available to clients are:
Practice Management Services
Financial Management Services
Accounting and Tax Services
Billing and Insurance
Retirement Plan Administration
Organizational Arrangements
Contract Negotiations and Review
Improved Performance and Profitability



Professional Management of Asheville, Inc.

99 McDowell Street
Asheville, N.C. 28801
Telephone: (704) 255-8711

Professional Management of Raleigh, Inc.

4913 Professional Court
Raleigh, N.C. 27609
Telephone: (919) 876-9711

Professional Management of Greensboro, Inc.

411-I Parkway Drive
Greensboro, N.C. 27401
Telephone: (919) 273-9777

Professional Consulting Services, Inc.

125 East Pennsylvania Avenue
Southern Pines, N.C. 28287
Telephone: (919) 692-4488

PMI Services Group, Inc.

2511 North Queen Street
Kinston, N.C. 28501
Telephone: (919) 522-1220

Professional Management of Winston-Salem, Inc.

2990 Bethesda Place, Suite 606-B
Winston-Salem, N.C. 27103
Telephone: (919) 765-1391

**Our Professional Network Serves All Counties in North Carolina
All Offices are Independently Owned**

Letters to the Editor



Readers Respond to "Mammoscam Revisited"

To the Editor:

The irony of the juxtaposition in the May issue of the *North Carolina Medical Journal* of Dr. Chitwood's paper, "The Good Physician: What Should We Be, Sir William," (NC Med J 1993;54:191-192) and Ms. Randal's article, "Mammoscam Revisited," (NC Med J 1993;54:194-199) was inescapable. The former exhorted us to "dust off Oslerian humanism if we hope to avoid the fate of a mere consumer/supplier relationship with our patients." The latter encouraged us to eschew mammographic screening in women under the age of 50.

One cannot help but wonder how far our profession has "progressed" since Osler when the advice of a "science writer" (whatever that is) is given equal weight in determining best medical practices with that of physicians who are medical school faculty members.

The response to "Mammoscam" from Drs. McLelland, Sullivan, and Bertrand were replete with all of the statistical data and arguments. As chairman of the group that formulated the consensus guidelines from the National Cancer Institute, the statistical and epidemiologic arguments are familiar to me. The representatives of the 12 leading medical organizations cited by Dr. Bertrand reviewed all of the data available through 1987 before recommending the guidelines cited by Dr. Bertrand and promulgated by the American Cancer Society in 1991.

We heard the representatives from the American College of Physicians and the Preventive Services Task Force ask repeatedly, "But does it show a difference at the $P < 0.05$ level?" The clinicians among us, particularly those who had

presided over the deaths of numerous women who developed breast cancer while in their 30s and 40s, responded with the more cogent question: "Would you have me tell my patient (wife, mother, daughter, sister) *not* to have mammographic screening?" In the absence of an affirmative answer, our best response was the consensus guidelines outlined by Dr. Bertrand.

I don't know what Ms. Randal tells her patients in her practice, but until responsible Oslerian physicians recommend *not* screening women in their 40s, the guidelines appear to me to be the standard for the responsible practice of medicine.

Donald M. Hayes, M.D.
Medical Director
Sara Lee Corporation
P.O. Box 2760
Winston-Salem, NC 27102

To the Editor:

I read with interest and slight dismay your recent reprint of "Mammoscam" by Judith Randal (NC Med J 1993;54:194-199). I also read the responses of the three mammographers. I understand the editor's point in raising these questions, but I question whether reprinting Ms. Randal's article does not lend it a legitimacy that it does not deserve.

Doctor-bashing is certainly popular in this era of health care reform, and Ms. Randal's bias could hardly be contained. I halfway expected the dreaded words, "medical-industrial complex" to leap from her pen! Unfortunately, she falls victim to that which she accuses everyone else of doing, i.e., making her point with flawed scientific studies that support her contention but ignoring any evidence to the contrary in the literature.

The responses from the three mammographers were much fairer. They seemed to lack Ms. Randal's bias, and they correctly pointed out that controversy in medicine is not bad. I would particularly like to emphasize my agreement with the last paragraph in Dr. Sullivan's response. It clearly summarizes everything that is wrong with Ms. Randal's article.

John C. Faris, M.D.
2803 Lyndhurst Ave.
Winston-Salem, NC 27103

Reply from the Deputy Editor:

Physicians hold themselves, and each other, to a special definition of "know." We are acculturated to say that we only "know" something if the supporting data could have occurred, by chance, less than 5% of the time ($P < 0.05$). Is this the standard that we hold ourselves to in other areas of life? Usually not. In fact, most people will tell you that the art of the decision is making a choice in the face of incomplete information. Perhaps what Dr. Hayes is saying is that a responsible physician can tell a patient that he or she believes or knows something to be right even if he or she doesn't always "know" it to be true at a $P < 0.05$ level.

Dr. Hayes and Dr. Faris also raise an eyebrow at the qualifications Ms. Randal brings to the table in discussing clinical indications for mammography. I believe informed discussion about controversial medical issues is valuable. The fact that the discussion was provoked by a science writer as opposed to a physician in no way diminishes the quality of the discus-

Continued on page 306

We've Been Protecting Professional Reputations For More Than 50 Years

With the comprehensive insurance program that includes the flexible coverages and unique services doctors in North Carolina value:

- Local claim and risk management services
- The expertise of specialized defense counsel

Put the unique services of The St. Paul behind your professional reputation. And get the financial strength of the insurance company with more than \$13 billion in assets.

Ask your independent insurance agent about The St. Paul. Or call Cherie Turner in The St. Paul's Charlotte Office at (704) 554-1220 or 1-800-432-6684.

After all, your reputation depends on it.



**Yours Deserves The Backing
Of A Multi-Billion Dollar Company**

The St Paul

St. Paul Fire and Marine Insurance Company

sion. We are grateful to Dr. Hayes and Dr. Faris for continuing the dialogue about mammography in this month's *Journal*.

Edward C. Halperin, M.D.

Deputy Editor, *NCMJ*

Department of Radiation Oncology
Box 3085 Duke Univ. Medical Center
Durham, NC 27710

In Appreciation

To the Editor:

It is fitting after reading Dr. William G. Porter's comments titled "Mother's Day" in the May issue of the *Journal* (NC Med J 1993;54:207-208) to offer appreciation. First, because everything he says is true. Secondly, because he has skills of expression that few people possess. Thirdly, because our only son's mother bears the eternal pain of his own unnecessary and premature demise.

The death of a child is certainly a tragedy in any century and at any age. Parents are supposed to die first. Our son, in a time of great despair, took his own life, perhaps making our grief even more unbearable if that is possible.

Thanks to Dr. Porter for encouraging a new kind of Mother's Day—one that might make those adorned with red roses more apt to count their blessings.

Marion W. Griffin, M.D.

218D Foust St.
Asheboro, NC 27203

Sensitivity vs. Specificity

To the Editor:

I enjoyed the discussion by Drs. Wong and Feussner in the May issue ("Screening for Asymptomatic Diseases in Your Patients: Practical Tips for Doing It Right," NC Med J 1993;54:218-221). Their clear and lucid discussion of some basic aspects of screening was very helpful, and I will be recommending their article generally to medical students and residents with whom I have contact.

There were, however, two errors. They were mistaken in their description of sensitivity and specificity. They wrote

"the sensitivity of the test is the same as the true positive rate—the proportion of patients with a positive test result who actually have the target disease." This is not true. The sensitivity of a test is the proportion of people with a target disease who have a positive test. The proportion of patients with a positive test who actually have the target disease is the predictive value of a positive test. Likewise, they misstated the specificity of a test in the same paragraph. It actually should read the proportion of patients who do not have a targeted disorder who have a negative test result. The equations they provide in later paragraphs are entirely correct as are the later verbal statements.

Again I congratulate Drs. Wong and Feussner on a very helpful article, and I look forward to their subsequent articles on this very important issue.

James C. Osborne, M.D.

Tannenbaum Medical Associates, P.A.

Wendover Medical Center, Suite 200

301 E. Wendover Ave.

Greensboro, NC 27401-1207

Reply from the Authors:

We are pleased that Dr. Osborne enjoyed our discussion of principles underlying the use of screening tests, and we are also pleased that he identified two subtle errors in our discussions using the four-cell decision matrix. He is quite right in asserting that the sensitivity of a test is the proportion of patients with the target disease who have a positive test. In that context, sensitivity and specificity are approached in a "vertical" direction when looking at the four-cell decision matrix. Thus, both sensitivity and specificity are defined in the context of the disease presence or absence.

Similarly, the predictive value of a test, or the posterior probability of disease given a positive test, is approached in a "horizontal" fashion when looking at the four-cell matrix. Thus, the positive predictive value is, as Dr. Osborne states, "the proportion of patients with a positive test result who actually have the target disease."

Another subtle error in our manuscript introduced to keep issues straight-

forward is the apparent stability of sensitivity and specificity in study populations. Although these are test attributes, they will likely vary when the test is transferred to different laboratories and used in different patients. Clinicians need to be aware of this fact, but the most important operational issue is that high-quality tests be used in high-risk patient groups to maximize the benefit of screening.

We appreciate Dr. Osborne's careful reading of our article and hope that other readers find the information useful as they consider screening strategies.

Jeffrey G. Wong, M.D.

John R. Feussner, M.D.

Division of General Internal Medicine

Box 3375 Duke Univ. Medical Center

Durham, NC 27710

TV Tales

To the Editor:

Congratulations on your television debut on "North Carolina People," (May 3 and 9, WUNC-TV). And recently I have had, through the courtesy of a friend, a chance to look at the February 1993 issue of the *North Carolina Medical Journal* [on Arts Medicine]. So congratulations again! Fascinating subjects presented in clear though technical prose.

Carl L. Anderson, Ph.D.

Professor Emeritus

Department of English

Duke University Ombudsman

Durham, NC 27706

"Pearl of the Month"

"Don't let your stethoscope get in the way of listening to the patient—and especially to grandma. She will tell you when it's measles and when it's chicken pox."

—submitted by

Bruce B. Blackmon, M.D.,

Buies Creek, NC 27506

We welcome other "pearls" from our readers. Send them to: *NCMJ*, Box 3910, DUMC, Durham, NC 27710.



Because One Size Doesn't Fit All...

Eli Lilly and Company can suit all your needs with the most complete line of human insulins available.

Featuring Humulin 70/30* and our latest addition to the premixed line, Humulin 50/50† —especially useful in situations in which a greater insulin response is desirable for greater glycemic control.



Humulin® 
human insulin
(recombinant DNA origin)

*Tailor-made options in
insulin therapy*

WARNING: Any change of insulin should be made cautiously and only under medical supervision.

*Humulin® 70/30 (70% human insulin isophane suspension, 30% human insulin injection [recombinant DNA origin]).

†Humulin® 50/50 (50% human insulin isophane suspension, 50% human insulin injection [recombinant DNA origin]).



Global Excellence in Diabetes Care
Eli Lilly and Company
Indianapolis, Indiana
46285

HI-7918-B-349310 © 1993, ELI LILLY AND COMPANY

Cat Germs!

Pleuropulmonary *Pasteurella* Infection in an Old Man

Jeffrey M. Kopita, M.D., David Handshoe, M.D., Peter S. Kussin, M.D., and Mark Kelemen, M.D.

Pasteurella multocida is a gram-negative coccobacillus found among the normal alimentary tract flora of many wild and domestic mammals. It is considered an uncommon pathogen in man, and it is most often associated with wound infections after animal bites.

Although rare, infections not involving bites are well-described in the literature and, surprisingly, some of these cases have no antecedent animal exposure. The skin and soft tissues are the most common sites for such *Pasteurella multocida* infections, and lung and pleura are the second most common.^{1,2,3} We present here the case of a man with *Pasteurella* pneumonia and bacteremia, and we review the literature on pleuropulmonary infections with this organism.

Our Patient

A 66-year-old man with a history of more than 200-pack-years of smoking was hospitalized for treatment of pneumonia. The patient was dependent on home oxygen and had limited functional status, with an FEV1 of 830 mL (expected value: > 3,000 mL). He had had multiple previous admissions for treatment of chronic obstructive pulmonary disease (COPD) with

bronchodilating drugs, parenteral corticosteroids, and antibiotics. Six months before admission the patient had coughed up blood, and a chest radiograph had revealed a new right lower lobe nodule (two cm in diameter), which was suspicious for malignancy; fiber-optic bronchoscopy with transbronchial biopsy was not diagnostic, and he declined further evaluation.

“...we learned that the patient's wife had two pet cats that frequently played on and licked the patient's home nebulizer machine. He denied any direct contact with the cats including scratches or bites.”

The present admission was prompted by the development of increasing shortness of breath, fever, and a new right lower lobe infiltrate and pleural effusion. He looked acutely ill and was in respiratory distress. Systolic blood pressure was 88 mm Hg, heart rate was 140 beats/minute, temperature was 38.6° Celsius, and respiratory rate was 30 breaths/minute. Auscultation of the chest was consistent with consolidation of the right base, and a chest radiograph showed a

right lower lobe infiltrate and right pleural effusion (Figure 1a-b, opposite page). The white blood cell count was 10,600 with 52 polymorphonuclear leukocytes, 19 band forms, 8 lymphocytes, and 11 monocytes. The patient was given Piperacillin and Gentamicin pending culture results. Blood cultures subsequently grew out a gram-negative rod identified as *Pasteurella multocida*.

On further questioning we learned that the patient's wife had two pet cats that frequently played on and licked the patient's home nebulizer machine. He denied any direct contact with the cats including scratches or bites. Cultures of the saliva of both cats grew *P. multocida*, but multiple cultures of the reservoir, mouthpiece, and tubing of the nebulizer machine were negative. His antibiotics were changed to high-dose penicillin and he was treated for 14 days without complication. The patient improved clinically and radiographically and was discharged to home.

Ten days after discharge, he was readmitted because of recurrent fever and increasing shortness of breath. Chest radiograph showed an interval increase in the right lower lobe infiltrate and pleural effusion. The patient was felt to have a relapsing pneumonia and possible empyema. Ultrasound-guided thoracentesis provided exudative fluid with a pH of 8.4, lactic acid dehydrogenase of 305 IU/dL, protein concentration of 2.8 g/dL. The fluid contained 700 white blood cells/(51% polymorphonuclear leukocytes,

From the Department of Medicine, Division of Allergy, Critical Care and Respiratory Medicine, Box 31166, Duke University Medical Center, Durham 27710.

36% lymphocytes, and 10% monocytes). Gram's stain, cytological analysis, and culture of the fluid were negative. The patient was treated with Piperacillin and Tobramycin and became afebrile. Repeat bronchoscopy to rule out endobronchial obstruction showed marked narrowing of the superior segment of the right lower lobe and a polypoid endobronchial lesion of the posterior segment of the right lower lobe. Multiple endobronchial biopsies, brushings, and washings were negative for tumor cells or bacteria. The patient improved with parenteral antibiotics and was discharged to home.

He was readmitted one month later because of acute respiratory failure requiring mechanical ventilation. Despite aggressive intervention, he died due to refractory respiratory failure. An autopsy, limited to the chest, showed a giant cell carcinoma of the lung that had extended into the mediastinum.

Biology of *Pasteurella*

Pasteurella species are non-spore forming, non-motile, bipolar coccobacilli that are negative to Gram's stain. They are aerobic and almost all have oxidase and catalase. Eleven different species exist, but most human infections are caused by *P. multocida*, *P. haemolytica*, *P. pneumotropica*, or *P. urea*. Both *P. multocida* and *P. haemolytica* produce a lipopolysaccharide endotoxin. All species are easily grown on conventional media especially when enriched with CO₂. Because of its staining characteristics *Pasteurella* is sometimes confused with *Hemophilus*, *Acinetobacter*, or *Neisseria*.¹

Pasteurella multocida is distributed worldwide, and five serotypes are known to exist.⁴ It is carried in the nasopharynx and gastrointestinal tract of domestic and wild mammals. Carriage rates are variable, with 50%-70% of cats, 12%-66% of dogs, and 51% of swine reported as positive.¹ *Pasteurella* can cause sporadic and epidemic pneumonia in animals and is linked to hemorrhagic sepsis in cattle.

Data regarding the rate of human carriage are limited. Jones and co-workers cultured *Pasteurella* from the sputum

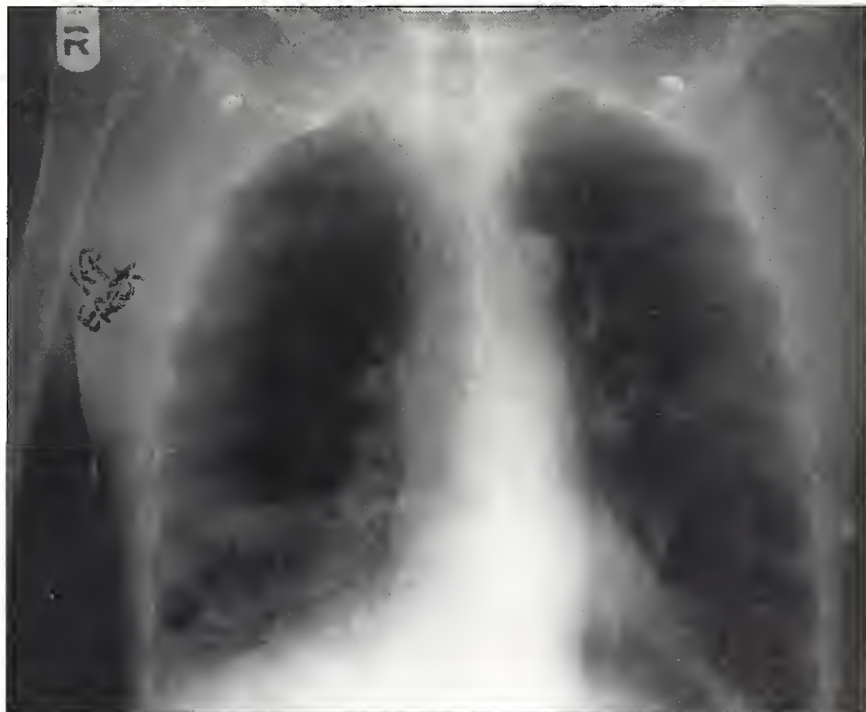
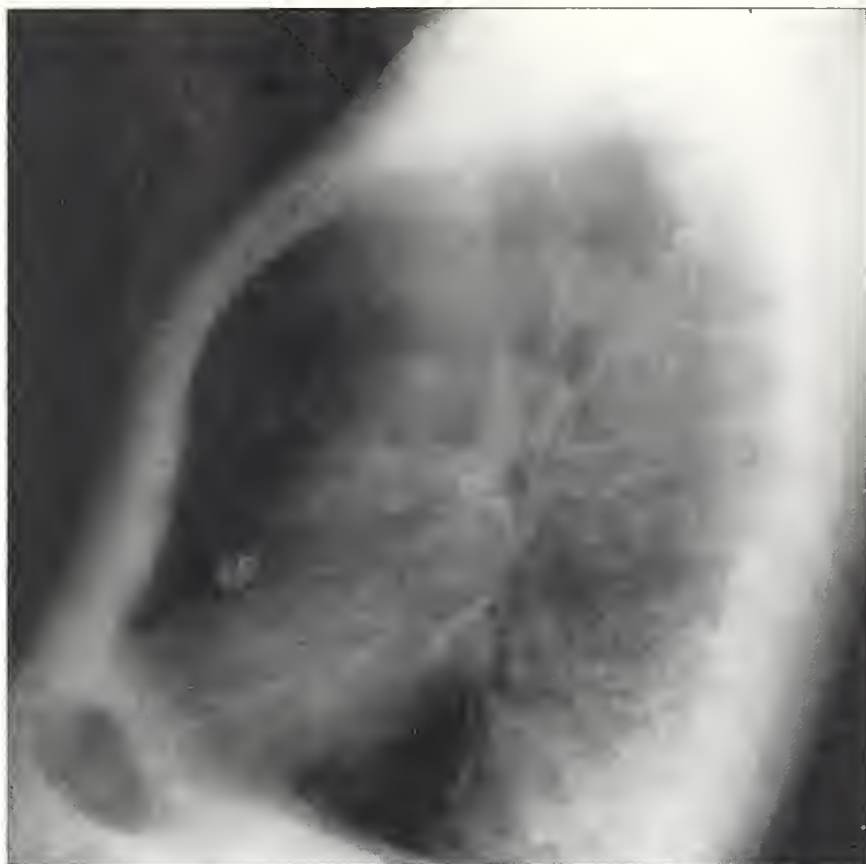


Figure 1a-b (top and bottom): Chest radiograph shows a right lower lobe infiltrate and right pleural effusion.

of two of 100 asymptomatic animal handlers.² Smith found a carriage rate of 2.9% in asymptomatic veterinary students.⁵ Human-to-human transmission has not been documented, and no seasonal clustering of infections has been observed.

Infections in Humans

There are three distinct types of human infections:

1. **Infections of soft tissues from animal bites** (usually of the extremities). These are by far the most common type. Between 7%-17% of animal bite wounds develop *Pasteurella multocida* infection.⁶ Cats are the offending animal most often cited, but this may simply reflect the increased carriage rate in felines.

2. **Infections resulting from non-bite exposure to cats** (as we postulate in our patient's case). These infections stem from contact with contaminated secretions of animals.

3. **Infections without known animal exposure.** In one series, this mechanism accounted for 31% of infections.⁷ Clinical manifestations are diverse and vary with the portal of entry.

Pasteurella multocida causes a wide spectrum of disease encompassing every human organ system. Virulence of the organism is enhanced by its degree of encapsulation.¹ *Pasteurella* has been identified as the cause of bronchitis, pneumonia, empyema, and upper respiratory infections including sinusitis. The organism has a predilection for the respiratory tract in patients with impaired lung or impaired immune function. Conditions that predispose a patient to colonization and subsequent infection include bronchiectasis, bronchogenic carcinoma, COPD, and chronic bronchitis.²

Pleuro-pulmonary Infection by *P multocida*

In order to fully elucidate the spectrum of respiratory disease caused by *Pasteurella multocida*, we reviewed the English and foreign language literature using a computerized MEDLINE search to locate all references to infections with *P multocida*. We also searched the bibliographies of relevant articles to obtain additional references. All case reports and case series detailing either tracheobronchitis, pneumonia, or empyema were reviewed and abstracted including one

review that abstracted several non-English case series from the pre-antibiotic era.⁸ Demographic and microbiological data as well as site of involvement, comorbid conditions, and patient outcomes were tabulated for each published account.

We located 53 references (contact the authors for a complete bibliography) to 108 microbiologically documented cases having adequate demographic, microbiological, and outcome information. The summarized data from these cases are presented in Table I. The mean age of the patients was 62±15 years, and 65% of the cases in which gender was specified were male. The primary illness was pneumonia in 49 cases, tracheobronchitis in 37, and lung abscess in three cases. Empyema was reported in 25 patients. Blood cultures documented *P multocida* bacteremia in 55% of patients who had appropriate cultures made.

Antecedent animal exposure preceded 61% of the reported cases including 28 cases directly implicating cats. Infections were reported after exposure to other domestic animals such as cattle, pigs, dogs, poultry, and horses. There was no correlation between either the type or length of animal exposure and the severity of the subsequent illness. Ninety-three percent of patients had some underlying co-morbid condition including COPD, bronchiectasis, malignancy, or other chronic disorders. Ninety-one percent of the population with known animal exposure (52 out of 57) had underlying chronic diseases. The mortality rate of patients with pleuropulmonary infections due to *Pasteurella* was 29%.

The clinical features of *Pasteurella* respiratory tract infections are indistinguishable from those caused by other pathogens. Symptoms include fever, chills, dyspnea, shortness of breath, pleuritic chest pain, and malaise.^{3,7} Pulmonary infections may have an abrupt onset, but in some cases it is insidious.³ In the 108 reported cases, lobar consolidation was the most common radiographic manifestation of *Pasteurella* pneumonia, but multilobar and diffuse disease have been described. There appears to be a propensity for lower lobe involvement. Patients

Table 1. Characteristics of 108 patients with *Pasteurella* pleuropulmonary infection

Age (years)	62±15
Male	63
Female	34
Unspecified	11
Type of Infection*	
Pneumonia	49
Tracheobronchitis	37
Empyema	25
Lung abscess	3
Other	1
Outcome (n=83 specified)	
Died	22 (29%)
Survived	61 (71%)
Bacteremia (n=33 tested)	
Yes	18 (55%)
No	15 (45%)
Underlying disease* (n=95 specified)	
None	7
COPD	37
Bronchiectasis	21
Malignancy	15
Tuberculosis	4
Cardiac disease	6
Cirrhosis	8
Pulmonary fibrosis	4

*more than one entry possible for each patient

may develop pleural effusions and empyema either with or without concomitant parenchymal lung disease.³

Pasteurella infections have been treated with penicillin G, ampicillin, tetracycline, chloramphenicol, and cephalosporins. Penicillin remains the drug of choice. Parenteral penicillin should be used to treat serious infections. In penicillin-allergic patients alternative choices include tetracycline and chloramphenicol. Duration of treatment should be based on the severity of underlying illness. Rou-

tine infections should probably be treated for at least 10-14 days.

A Final Note

Our patient had a *Pasteurella multocida* septicemia and a presumed post-obstructive pneumonia. We suspect that contamination of his nebulizer machine by pet cats was the mode of transmission of the organism. Our review of the literature supports the association of *P multocida*

pleuropulmonary infections with exposure to domestic animals and the predisposition to infection in patients with underlying chronic obstructive lung disease and immunocompromised states. *Pasteurella multocida* may be a more common human pathogen than previously acknowledged. Pulmonary infection with this organism should be considered in any patient who has impaired lung function who has been exposed to an appropriate animal vector. □

References

- 1 Mandell GL, Douglas RG, Bennett JE. Principle and practice of infectious disease. Fourth Edition 1990, pp 1746-1748.
- 2 Jones Rf, Smull CE. Infections in man due to *Pasteurella multocida*. Penn Med J 1973;76:41-44.
- 3 Weber DJ, Wolfson JS, Swartz MN, Hooper DC. *Pasteurella multocida* infections. Report of 34 cases and review of literature. Medicine 1984;63:133-154.
- 4 Rimler RB, Rhoades KR, Serogroup F. A new capsule serogroup of *Pasteurella multocida*. J Clin Microbiol 1987;25:615-623.
- 5 Smith JE. *Pasteurella septica* III stains from human beings. J Comp Pathol and Ther 1959;69:231.
- 6 Tindall JP, Harrison CM. *Pasteurella multocida* infections following animal injuries, especially cat bites. Arch Dermatol 1972;105:412-416.
- 7 Hubbert WT, Rosen MN. *Pasteurella multocida* infections in man unrelated to animal bite. Am J Pub Heal 1970;60:1109.
- 8 Schipper GJ. Unusual pathogenicity of *Pasteurella multocida* isolated from the throats of common wild rats. Bull Johns Hopkins Hosp 1947;81:333-356.

THE ARMY RESERVE OFFERS UNIQUE AND REWARDING EXPERIENCES.



As a medical officer in the Army Reserve you will be offered a variety of challenges and rewards. You will also have a unique array of advantages that will add a new dimension to your civilian career, such as:

- special training programs
- advanced casualty care
- advanced trauma life support
- flight medicine
- continuing medical education programs and conferences
- physician networking
- attractive retirement benefits
- change of pace

It could be to your advantage to find out how well the Army Reserve will treat you for a small amount of your time. An Army Reserve Medical Counselor can tell you more, call:

Collect 919-493-1364

ARMY RESERVE MEDICINE. BE ALL YOU CAN BE.®

Physician-Assisted Suicide and Advance Directives Concerning Life Support

Editor's note: The following is an edited transcript of a Morning Conference in Hematology-Oncology at Duke University Medical Center, Durham. Because of the thorny issues involved, we asked three individuals with experience in ethical decisions to comment. This article is a prelude to next month's special issue on Medical Ethics, guest edited by Larry R. Churchill, Ph.D., and Nancy M. P. King, J.D., of the Department of Social Medicine, UNC School of Medicine, Chapel Hill.

The Case in Point

Dr. Gockerman: I first met CL in August 1989. A week earlier he had been diagnosed with hepatocellular cancer, and he was looking for some treatment. After evaluating the histopathology of the tumor and his clinical situation, we felt that we could resect the tumor in hopes of curing him. He underwent a wedge resection in September 1989, and did extremely well. He had no problems until April 1990 when we noted a new lesion in the right lobe of the liver. He underwent a second laparotomy, but the tumor was not resectable.

After some discussion we referred our patient to Dr. Stanley Order at Johns Hopkins. Dr. Order uses monoclonal antibodies directed against ferritin, a substance high in hepatomas, and we hoped that CL might be a candidate for that procedure. Dr. Order gave external beam radiotherapy, followed by intra-arterial cisplatin. The tumor did not respond, and we decided not to use monoclonal antibody therapy.

In the fall 1990, CL still desired further therapy. We tried a variety of chemotherapy programs. Initially we used an aggressive, multi-agent chemotherapy program, but he didn't respond. We then switched to 5-fluorouracil/leucovorin and the tumor did respond, to my amazement. He subsequently developed pulmonary metastases with shortness of breath but was able to resume working.

About this time CL presented me with a living will. This is a very interesting document—it was a medical power of attorney. He desired treatment of his disease but didn't want heroics. When there was no hope, he wanted no further therapy. Chemotherapy was continued through spring 1991, and he did respond. By May, however, it was clear that things were not going well.

Dramatis Personae

Jon P. Gockerman, M.D., associate professor, Division of Hematology-Oncology, Department of Medicine
Edward C. Halperin, M.D., professor, Department of Radiation Oncology
Gustav C. Magrnat, M.D., fellow, Division of Hematology-Oncology, Department of Medicine
Barbara M. Hendrix, director, Risk Management
William P. Peters, M.D., Ph.D., associate professor, Division of Hematology-Oncology, Department of Medicine

We had another long discussion about therapeutic options. CL, his wife, and I decided that it really wasn't worthwhile pursuing those options. Our goal should be comfort. At that time, for the first time, he brought up the issue of whether I would help him die. He thought I should help him translate his life into death and that this was part of my obligation as a physician. I declined to assist his death, feeling that this was neither something I knew how to do well nor ethically felt comfortable in doing. We set him up with hospice at home. He benefited from this care over the ensuing several months and he went on to die. On the day he died he read his *Wall Street Journal* and did some things around the house, rested that afternoon, and then went into a coma. He died a very peaceful death.

CL had three children. One of them is a psychologist. I quote from a letter that he wrote to me after CL's death:

"We were very, very pleased that CL got to die in his home. He read the *Wall Street Journal*, worked at his desk, and did the things that he vowed to the end...[H]e retained dignity to the

end at a level far greater than we thought possible. At the same time I believe that CL was disturbed by the degree to which the medical community wouldn't play a more active role in helping make the transition to death. For the record, I resent the allegiance that the people continue to pay to the Hippocratic Oath when it implies that they cannot aid people in death under any circumstances. It seems a little too black and white by my way of thinking. As a psychologist and another member of the helping profession I believe that too often pragmatics and unexamined arrogance are the basis for the stands on this issue."

He said that he did appreciate our care, but left the clear impression that we had failed this man in his last days; that I hadn't made CL's transition from life to death better.

Suicide: Four Arguments

Dr. Halperin: I will present the four principal arguments in favor of physician-assisted suicide and their rebuttals.

1) An End to Suffering. The most common argument in favor of physician-assisted suicide is that it is more humane to end a life of pain and suffering, in a patient whom you know to be dying, than to allow a protracted and agonizing death.² From the Greek we get "eu" meaning "well" or "good" and "thanatos" meaning "death." Thus we come to the "good death"—euthanatos or euthanasia.

The counterargument reformulates the question. We know that persistent pain and the terminal nature of an illness are the primary reasons that patients cite in favor of physician-assisted suicide.³ Two-thirds of physicians responding to a poll in California said that they had been asked by terminally ill patients to hasten death. Furthermore, pain is one of the most feared consequences of cancer. In a recent survey two-thirds of cancer patients said they would consider committing suicide if pain was not adequately controlled and treated. Since we know that in medical training there is a dearth of proper instruction in pain management and that many cancer patients have insufficient treatment of pain, we suspect that many cancer patients, feeling hopeless and suffering greatly from pain, consider suicide when what they need is more vigorous pain therapy (medications, neurosurgical procedures, anesthesia injections, or radiation to a painful tumor).⁵ People may consider suicide when, in fact, what they need is better medical care.

Some patients have limited access to pain-relieving measures. This may be due to a false concern about addiction or to a physician's reluctance to deal with the difficult problem of pain. In some parts of the U.S. there are obstacles to obtaining pain medication because of triplicate forms. In some areas pharmacies do not carry narcotics (only about 10% to 20% of New York City pharmacies carry narcotics because of concern about theft). If medical care helped patients to have less pain, they might be less desirous of suicide. And if patients who are depressed were recognized and treated, this might obviate the request for suicide.⁵

2) The Freedom to Choose. The "free-will argument" holds that people have a right to choose their own death at their own time as an expression of our free will. The free-will argument was eloquently stated by Immanuel Kant:

"So long as a person does not violate the proprietary rights of others, man is a free agent with regards to his body. There are various things he can properly do. He can have a boil lanced or a limb amputated. He can disregard a scar. He is in fact free to do whatever he may consider useful and advisable. If he then comes to the conclusion that the most useful and advisable thing that he can do is to put an end to his life why should he not be entitled to do so? Why not if he sees that he can no longer go on living and that he will be ridding himself of misfortune, torment, or disgrace? To be sure he robs himself of full life but he escapes once and for all the calamity and misfortune."⁶

There are three objections to the free-will argument: the natural law objection, the theology objection, and the psychiatric objection. Kant actually espoused the natural law objection:

"The body constitutes a part of ourselves. If a man destroys his body and so his life he does it by the use of this free will which is itself destroyed in the process. To use the power of a free will for its own destruction is self contradictory. If freedom is the condition of life it cannot be employed to abolish life and so to destroy and abolish itself. To use life for its own destruction, to use life for producing lifelessness are self contradictory."⁶

The theological objection is found in the Book of Genesis (9:5): "But of the blood of your own lives I will demand an account." Expanding on this verse, Rabbi Shlomo Riskin writes:

"This leads one to conclude that a person is not allowed to destroy his own life. A religious person must understand that life is granted only on loan to be used in accordance with God's will. It may sometimes be easier had we never been born but life is a challenge which, despite its difficulty and tragedy, must be met. Jewish law creates a subtle theme that I am bound to God for everything. The mouth into which we put food, [and] the body which we cover with modest clothing all remind us that our lives ultimately belong to God and this is the real meaning behind the first verse of Genesis: 'In the beginning God created the heaven and the earth.' If the world was created ex nihilo we are all God's creations. We are therefore responsible to him for our actions and ultimately for our bodies, and indeed our very lives are his. Thus the taking of a life is the ultimate rebellion, the ultimate rejection of God."⁸

The Roman Catholic Church has addressed the issue of euthanasia many times. Pope John Paul II gave a firm and unequivocal statement in his 1980 Declaration on Euthanasia issued to the congregation for the Doctrine of the Faith:

"It is necessary to state firmly once more that nothing and no one can in any way permit the killing of an innocent human being whether a fetus or an embryo, an infant or an adult, an old person or one suffering from an incurable disease, or a person who is dying. Furthermore no one is permitted to ask for this act of killing either for himself or herself or for another person entrusted to his or her care. Nor can he or she consent to it either

explicitly or implicitly. Nor can any authority legitimately recommend or permit such an action for it is a question of the violation of divine law, an offense against the dignity of the human person, and a crime against life and an attack on humanity.”⁷

The final objection to the free-will argument is the psychiatric objection. David Peretz of Columbia University articulates this as follows:

“Most of us readily recognize external threats and we deal with them, not the least of which is denial. *This will not happen to me.* But under the unprecedented stress of recent decades denial mechanisms are breaking down, and we are becoming increasingly vulnerable to the internal threat of intensely painful feelings: anxiety, fear, rage, guilt, shame, longing, helplessness. In order to avoid being overwhelmed we are driven to seek new ways to adapt. If our deepest growing fear is of being destroyed, and we cannot deal with that fear, we take refuge in planning our death and in a so-called rational suicide. We find comfort in the allusion that it will not be done to me but that I will do it myself. People are seeking control over external/internal threats to a diminished present through the fantasy that *I can do it to myself before it is done to me.* In this fantasy one imagines killing the self as an object and thus preserving the illusion of immortality.”⁷ [italics added—Ed.]

3) The Life Not Worth Living. This argument goes as follows: A life of impaired awareness, a life dependent on pharmaceutical or mechanical support, a life that is no longer full or fulfilling is not worth living. This argument supposes that one can attach a value to life. If that value does not meet certain standards, life is not worth living, it is insufficient.

The problem arises when we try to decide who decides the value of life? Under what circumstances is value decided? Are the lives of those with terminal illnesses not worth living? Those with chronic illnesses, too? What level of consciousness must a person have to decide that his or her life isn't worth living? If consciousness is impaired, then who decides value? What role does the family play in deciding? What if the family has ulterior motives? Can one decide that another's life is not worth living on behalf of a congenitally deformed child or an infant?²² One can invoke the specter of wholesale slaughter in Nazi Germany, the killing of the deformed and the mentally retarded, and the subsequent decision that Gypsies, Jews, and Poles were non-human and therefore could be killed. If one life is not worth living there is no way to draw the line as to which other lives are not. Euthanasia could end up as a medical model for unregulated murder.

4) Other People Are Doing It. The final argument is a popular one. To wit: physician-assisted suicide and euthanasia are “legal” in the Netherlands. The Dutch have demonstrated that physician-assisted suicide/euthanasia can be regulated, be rational, and can be done with societal acceptance. If the Dutch can do it, so can we.

Dutch law states: “He who robs another of life at his

expressed and serious wish is punished with a prison sentence of at most 12 years or a fine. He who deliberately incites another to suicide, assists him therein, or provides him with the means is punished, if the suicide follows, with a prison sentence of at most three years or a fine.”²⁴ This law, which is more than 100 years old, defines assisted suicide as illegal but not a capital offense. It is punishable, not by life in prison but by three to 12 years. Where did the notion come from that physician-assisted suicide and euthanasia are legal in the Netherlands?

For the Dutch, the “legal” status of euthanasia resides in a series of judicial opinions—some of which are expansive in permitting euthanasia; some, restrictive; and some, contradictory. In a body of case law beginning in 1973 and continuing today, Dutch judges have found certain acts of euthanasia acceptable. A terminally ill person, who expressly wishes suicide, must ask the physician for assistance within the hearing of the family. The physician must consult a second physician, perform the act, and notify the District Attorney who may choose not to prosecute. Many courts in the Netherlands, but not all, have accepted this procedure. In any case, physician-assisted suicide isn't legal in the Netherlands—it exists in a peculiar “extra-legal” or “intra-judicial space” where it is “not illegal” if the District Attorney decides not to prosecute.

How does the Dutch system work? How often does physician-assisted suicide occur? Some 200 to 400 cases are reported each year, suggesting that physician-assisted suicide and euthanasia account for less than 1% of all deaths in the country. Some observers assert that a large number of cases are never reported to the authorities and that assisted suicide accounts for 4% to 16% of all deaths in the Netherlands.¹⁴ Without doubt, some well-documented cases of physician-assisted suicide take place exactly as the courts have described. On the other hand, in many cases no second opinion was obtained, or there were questions about the patient's wishes, or no proper pain management was employed. The system is poorly regulated.

Dr. Magrinat: The lay public frequently feels that physicians have a special skill in this area. We do have special skills in pain management and sometimes in helping people in their last moments. But in medical school we are not taught to help persons commit suicide. There are a lot of specialized skills that would have to be taught to medical students and residents before this could possibly become commonplace.

Advance Directives

Ms. Hendrix: I was asked to discuss the Patient Self-Determination Act and advance directives. Advance directives is a generic term that refers to patient's right to elect a natural death, to designate a health care power of attorney, and to other mechanisms available in other states. The Patient Self-Determination Act is federal law that became effective December 1, 1991. Patients, on admission to the hospital, are asked “Do you have an advance directive?” If the answer is yes, we get copies

of it and put it in the chart. If the answer is no, they are asked if they would like information. We hand them explanatory information in a format mandated by the state of North Carolina. Federal law requires every hospital, every health maintenance organization, and every pre-paid physician organization in the country to do so. Patients are being bombarded with advance directives information.

Health Care Power of Attorney. This is a new form that came into effect in North Carolina on October 1, 1991, to replace the old durable power of attorney. If a patient has an old durable power of attorney, it is still valid, but the new form is better because it lets patients discuss issues with their health care agent and clearly mark out their decisions. Health care providers need to read the form very carefully and discuss it with their patients. We encourage patients to talk to their physician about this form, but we also offer referral to the chaplain's service or to social workers who can help patients work through issues such as "I would really like to designate my adult son, but my husband is going to be very upset, how do I deal with this?" In addition, many patients cannot read or understand a form of this complexity, and then we come up and read through the form with them. We do not tell them what to do because this is up to the patient, but we certainly do our best to help them understand these forms.

Through the health care power of attorney, patients can delegate broad or limited powers of decision-making. They can name any adult except their physician as health care agent. There is space for a list of alternate health care agents in case people refuse, have moved away, or cannot be contacted. Patients who want to can fill out an election for right to natural death and specify in their health care power of attorney that their agent cannot revoke it. So the patient can limit the powers of decision-making. They can nominate potential guardians in case guardianship becomes a question.

No employee, including physicians, can witness these forms. It is not that we don't want to be helpful, but it is strictly prohibited by state law. Witnesses cannot be related by blood or marriage to the patient, nor can they be a beneficiary of the patient's estate. This gives us some real difficulties when the patient wants to complete these forms in the hospital. Medical students may act as witnesses and some volunteers have agreed to act as witnesses. The forms must be notarized. In general, we encourage patients to discuss these forms ahead of time, talk to their physicians, to their family, their friends, their ministers—whichever they need to in order to get the issues worked out, and also get witnesses and a notary.

Declaration of Desire for Natural Death. The form for a Declaration of Desire for Natural Death changed significantly on October 1, 1991, but the old form is still valid. One problem with the old form was that it did not address the issue of a persistent vegetative state, a matter of great concern for many patients and their families. North Carolina changed the statute and the form now does include an election concerning the

persistent vegetative state. The form also addresses the issue of artificial hydration or nutrition, which has again been a big problem for some families and care providers.

One question that comes up, again and again, is: "Do patients have to have these forms?" No. They do not supplant talking with the patient, documenting their wishes, and acting in accord with hospital policies. These forms do help patients work through and communicate more clearly with their doctors about these important issues and to do that while they have time to think about them, not when they are in a crisis. If patient and doctor cannot agree on advance directives, then we recommend transfer of care to a physician who can work with the patient.

Dr. Gockerman: Some lawyers recommend that the health care agent be the attending physician. What's the policy?

Ms. Hendrix: The attending physician cannot be the health care agent in North Carolina. It is prohibited. The patient must designate an individual other than the attending physician.

What's A Doctor To Do?

Dr. Peters: What does Risk Management say about today's patient who was in bad health, with good pain control, and specifically asked for physician-assisted suicide, to provide the means to do himself in?

Ms. Hendrix: We refer it back to the physician.

Dr. Peters: I am asking for Risk Management's views. You are not going to tell me whether it is right or wrong. I have already been told by a rabbi and the Pope.

Ms. Hendrix: Physician-assisted euthanasia is not addressed by advance directives. Those relate to extraordinary means of accepted medical treatment. I think we would have a hard time arguing that physician-assisted euthanasia is within standard of care. Risk Management will always say that we want to maintain the standard of care. I would probably have a very difficult time defending an active euthanasia case if one arose, but we see very little that is absolutely black and white. There is an awful lot of gray.

Dr. Peters: Concerning today's case should Dr. Gockerman say "Look, I can't come to an agreement. Do you want reassignment to another physician who will handle your wishes?"

Ms. Hendrix: Risk Management does not get involved in assigning physicians to patients. We are not clinicians. If a patient requires transfer, that is up to the physician.

Dr. Peters: In the end, the practice I am going to follow is to say, "Damn the lawyers, talk to the patient." □

References

- 1 Batlin MD. Euthanasia: the way we do it, the way they do it. *J Pain Sym Manage* 1991;6:298-305.
- 2 Brescia FJ. Killing the known dying: notes of a death watcher. *J Pain Sym Manage* 1991;6:337-9.
- 3 Foley KM. The relationship of pain and symptom management to patient requests for physician-assisted suicide. *J Pain Sym Manage* 1991;6:289-97.
- 4 Gomez CF. *Regulating Death: Euthanasia and the Case of the Netherlands*. New York: Free Press, 1991.
- 5 Klagsbrun SC. Physician-assisted suicide: a double dilemma. *J Pain Sym Manage* 1991;6:325-8.
- 6 Mappes TA, Zembaty JS, (eds.). *Biomedical Ethics*, 3rd edition. New York: McGraw-Hill, 1991.
- 7 O'Rourke K. Assisted suicide: an evaluation. *J Pain Sym Manage* 1991;6:317-24.
- 8 Riskin S. Suicide as murder. *Jerusalem Post, International Edition*, 5/25/91, p 23.

Three Responses:

I. Louis L. Brunetti, M.D., J.D., Dept. of Internal Medicine, Carolinas Medical Center, Charlotte

According to current opinion polls at least two-thirds of Americans believe that physicians should be allowed to assist their patients in dying.¹ Recently, voters in Washington and California considered and, by a narrow margin, decided against adopting legislation to permit physician-assisted suicide. This controversial topic was the subject of the "Physicians' Roundtable" as participants sought to analyze the legal and ethical implications of CL's request for physician-assisted suicide. Although the merits of CL's request could serve as a rich source for further discussion, I would like, instead, to focus my remarks on the process of analysis that the panelists undertook in considering this issue.

The presentation of the clinical aspects of CL's case was clear, and the statement of the major ethical arguments in support of suicide was concise, yet comprehensive. In addition, the institution's risk management representative provided an overview of the current laws pertaining to advance directives and extraordinary life support. Although these legal and ethical principles are adequately explained we are, nevertheless, left feeling that the participants' analysis is incomplete. Why is this so? What features of the case need to be explored in greater detail?

Issues That Lie Behind Suicide Requests. We are never told of the patient's reasons for wanting to commit suicide, nor of the nature of the clinician's objections to the request. The discussants have provided us with an understanding of the legal and ethical principles that are most important, but they have failed to apply these principles to the facts at hand. Thus, the real controversy between patient and doctor is never engaged and many questions go unanswered. For example, despite an arguably "good death," CL's son was disappointed with the clinician's decision not to provide assistance. Why is he disappointed? We are unable to answer this question because we don't know the motivations of CL's request. Did he fear pain? Or, did he fear suffering—an aspect of caring for the terminally ill patient that often is not considered apart from pain control and that can persist despite our success at controlling pain. Was

the source of CL's request his fear of losing control? Was it his fierce independence? Was he an individual who valued independence and control more than life itself? We do learn that CL believed that part of a physician's obligation includes helping the patient to die. Was this belief grounded in CL's view of patient autonomy? Did he view autonomy as a positive right that entitled him to demand specific treatments, including physician-assisted suicide, even if his physician opposed the treatment on moral grounds?

Similarly, we fail to learn the basis of the clinician's objections to providing assistance to CL. What was the moral basis for his refusal to assist in the patient's suicide? He stated that he did not feel "ethically comfortable" with the patient's request. What does this mean? Did he believe that, when it comes to matters of deciding on treatment, paternalism trumps any right a patient may have to request certain treatments? Was he motivated by the principle of nonmaleficence—to "do no harm?" Were his personal views about the sanctity of life so strong that he could never consider physician-assisted suicide under any circumstance? As with CL, we simply do not have answers to these questions.

Why Ethical Decisions are Difficult. It is not enough simply to ask questions and hypothesize what the answers might be. Rather, we must consider why the "Roundtable" failed to address these issues. I believe that the panelists' failure to explore the questions I noted above is characteristic of how ethical issues are confronted in clinical practice. As the case illustrates, despite the best of intentions, unless we appreciate that the solving of ethical dilemmas is fundamentally different from the approach to biomedical problems, then we are unlikely to engage these issues in the context and depth needed to arrive at a satisfactory conclusion.

Unlike the work-up of a urinary tract infection or abdominal pain, evaluation of clinical ethical dilemmas generally does not follow a well-defined pathway nor are there particular algorithms to help guide our decision-making. When we encounter clinical ethical dilemmas we usually react as we would

FREEDOM FROM PAIN!

**Extra strength pain relief
free of extra prescribing
restrictions.**

- Telephone prescribing in most states
- Up to five refills in 6 months
- No triplicate Rx required

15 years of proven clinical experience

- Effective central and peripheral pain relief.
- Excellent patient acceptance—nausea, sedation and constipation have rarely been reported.¹
- Four to six hours of extra strength pain relief from a single dose.
- The heritage of VICODIN®* — over one billion doses prescribed.²
- The 8th most frequently prescribed medication in America.²

vicodin ES

(hydrocodone bitartrate 7.5mg [Warning: May be habit forming]
and acetaminophen 750mg)

**Extra strength pain relief
you can phone in.**

¹ Data on file, Knoll Pharmaceutical Company

² Standard industry new prescription audit.

* (hydrocodone bitartrate 5mg [Warning: May be habit forming] and acetaminophen 500 mg)



Maintain control of your patient's pain therapy.

Rx

Specify

*Do not
substitute*

vicodin ES

(hydrocodone bitartrate 7.5mg (Warning: May be habit forming)
and acetaminophen 750mg)

It's your prescription – not a suggestion.

INDICATIONS AND USAGE: For the relief of moderate to moderately severe pain. **CONTRAINDICATIONS:** Hypersensitivity to acetaminophen or hydrocodone. **WARNINGS:** **Respiratory Depression:** At high doses or in sensitive patients, hydrocodone may produce dose-related respiratory depression. **Head Injury and Increased Intracranial Pressure:** The respiratory depressant effects of narcotics and their capacity to elevate cerebrospinal fluid pressure may be markedly exaggerated in the presence of head injury, other intracranial lesions or a preexisting increase in intracranial pressure. Furthermore, narcotics produce adverse reactions which may obscure the clinical course of patients with head injuries. **Acute Abdominal Conditions:** The administration of narcotics may obscure the diagnosis or clinical course of patients with acute abdominal conditions. **PRECAUTIONS:** **Special Risk Patients:** VICODIN/VICODIN ES Tablets should be used with caution in elderly or debilitated patients and those with severe impairment of hepatic or renal function, hypothyroidism, Addison's disease, prostatic hypertrophy or urethral stricture. **Cough Reflex:** Hydrocodone suppresses the cough reflex, as with all narcotics, caution should be exercised when VICODIN/VICODIN ES Tablets are used postoperatively and in patients with pulmonary disease. **Drug Interactions:** Patients receiving other narcotic analgesics, antipsychotics, anxiolytic agents, or other CNS depressants (including alcohol) concomitantly with VICODIN/VICODIN ES Tablets may exhibit an additive CNS depression. The use of MAO inhibitors or tricyclic antidepressants with hydrocodone preparations may increase the effect of either the antidepressant or hydrocodone. The concurrent use of anticholinergics with hydrocodone may produce paralytic ileus. **Usage in Pregnancy:** **Teratogenic Effects:** Pregnancy Category C. Hydrocodone has been shown to be teratogenic in hamsters when given in doses 700 times the human dose. There are no adequate and well-controlled studies in pregnant women. VICODIN/VICODIN ES Tablets should be used during pregnancy only if the potential benefit justifies the potential risk to the fetus. **Nonteratogenic effects:** Babies born to mothers who have been taking opioids regularly prior to delivery will be physically dependent. The withdrawal signs include irritability and excessive crying, tremors, hyperactive reflexes, increased respiratory rate, increased stools, sneezing, yawning, vomiting, and fever. **Labor and Delivery:** Administration of VICODIN/VICODIN ES Tablets to the mother shortly before delivery may result in some degree of respiratory depression in the newborn, especially if higher doses are used. **Nursing Mothers:** It is not known whether this drug is excreted in human milk. Because many drugs are excreted in human milk and because of the potential for serious adverse reactions in nursing infants from VICODIN/VICODIN ES Tablets, a decision should be made whether to discontinue nursing or to discontinue the drug, taking into account the importance of the drug to the mother. **Pediatric Use:** Safety and effectiveness in children have not been established. **ADVERSE REACTIONS:** The most frequently observed adverse reactions include light-headedness, dizziness, sedation, nausea and vomiting. These effects seem to be more prominent in ambulatory than in nonambulatory patients and some of these adverse reactions may be alleviated if the patient lies down. Other adverse reactions include: **Central Nervous System:** Drowsiness, mental clouding, lethargy, impairment of mental and physical performance, anxiety, fear, dysphoria, psychic dependence and mood changes. **Gastrointestinal System:** The antiemetic phenothiazines are useful in suppressing the nausea and vomiting which may occur (see above), however, some phenothiazine derivatives seem to be antianalgesic and to increase the amount of narcotic required to produce pain relief, while other phenothiazines reduce the amount of narcotic required to produce a given level of analgesia. Prolonged administration of VICODIN/VICODIN ES Tablets may produce constipation. **Genitourinary System:** Urteral spasm, spasm of vesical sphincters and urinary retention have been reported. **Respiratory Depression:** Hydrocodone bitartrate may produce dose-related respiratory depression by acting directly on the brain stem respiratory center. Hydrocodone also affects the center that controls respiratory rhythm, and may produce irregular and periodic breathing. If significant respiratory depression occurs, it may be antagonized by the use of naloxone hydrochloride. Apply other supportive measures when indicated. **DRUG ABUSE AND DEPENDENCE:** VICODIN/VICODIN ES Tablets are subject to the Federal Controlled Substance Act (Schedule III). Psychic dependence, physical dependence, and tolerance may develop upon repeated administration of narcotics; therefore, VICODIN/VICODIN ES Tablets should be prescribed and administered with caution. **OVERDOSAGE:** **Acetaminophen Signs and Symptoms:** In acute acetaminophen overdose, dose-dependent, potentially fatal hepatic necrosis is the most serious adverse effect. Renal tubular necrosis, hypoglycemic coma, and thrombocytopenia may also occur. Early symptoms following a potentially hepatotoxic overdose may include: nausea, vomiting, diaphoresis and general malaise. Clinical and laboratory evidence of hepatic toxicity may not be apparent until 48 to 72 hours post-ingestion. **Hydrocodone Signs and Symptoms:** Serious overdose with hydrocodone is characterized by respiratory depression (a decrease in respiratory rate and/or tidal volume, Cheyne-Stokes respiration, cyanosis), extreme somnolence progressing to stupor or coma, skeletal muscle flaccidity, cold and clammy skin, and sometimes bradycardia and hypotension. In severe overdose, apnea, circulatory collapse, cardiac arrest and death may occur.

Revised March 1992

5890

Knoll Pharmaceutical Company
30 North Jefferson Road
Whippany, New Jersey 07981

BASF Group



for any other type of clinical problem. We strive to determine the facts that we believe are important to resolving the controversy, and we attempt to identify the issues that must be decided. However, subsequent steps are unpredictable because physicians, patients, and their families bring a variety of perceptions, values, and interpretations to the clinical encounter.² The clinical implication of these different realities must be reconciled in order to arrive at a consensus regarding further treatment. Very often, the patient's death becomes a negotiated event, and clinical decisions more nearly resemble a cascade of events (some predictable, some unpredictable) than a patterned, reflective sequence.²

Familiarity with Ethical Issues. One factor that determines the manner in which ethical issues are considered is the experience of the clinician. As with the practice of clinical medicine, our ability to identify the ethical issues in a particular case is directly related to our understanding of the general principles of medical ethics and of the particular principles applicable to an individual case. Additional factors, such as the educational, cultural, and socioeconomic differences between physician and patient can pose further barriers to full consideration of these issues.^{3,4} Physicians who have recently completed medical school may have benefited from curricula that prepare practitioners to deal with the legal and ethical dimensions of medical treatment, thereby permitting greater consideration of a patient's request.

Despite a growing recognition that training in clinical medical ethics is helpful, our current approach to clinical decision-making is heavily weighted toward application of the biomedical model alone.⁵⁻⁷ When physicians make clinical decisions, they integrate scientific knowledge and the results of empirical studies to help them make a clinical diagnosis or choose a treatment—a process that has been termed the epistemic aspect of medicine.⁸ However, as Sadler and Hulgus point out,⁸ if we extend the focus of the clinical encounter beyond solely identifying the patient's disease and treatment, then two other aspects of clinical problem-solving become apparent—the ethical and pragmatic aspects.

The ethical aspects of the clinical encounter involve value conflicts between the patient and the physician (and sometimes other members of the health care team or the patient's family). The issues may focus on treatment decisions such as withhold-

ing or withdrawing of life-sustaining treatment or, as in CL's case, on physician-assisted suicide. Larger issues, such as the allocation of scarce resources (for example, intensive care unit beds within the hospital) may also require consideration. Regardless of the ethical issue in question, when the clinical encounter involves choosing between two acceptable courses of action that differ only in their consideration of personal values, then isolated application of the biomedical model is inadequate and bound to yield an unsatisfactory result.⁸

Crossed-Aspect Decision-Making. Because health care professionals differ in their ability to solve ethical dilemmas and because of bias toward using the biomedical model for solving clinical problems, errors in judgment are bound to occur. Sadler and Hulgus term this "crossed-aspect decision-making." They emphasize that errors in judgment can occur when only scientific inquiry is relied on to solve ethical or pragmatic problems. These errors can take the form of attempting to apply scientifically based (epistemic) solutions to ethical problems, mistaking a pragmatic problem for an ethical one, or presuming that an ethical dilemma can be solved merely by seeking more facts.

We see examples of crossed-aspect decision-making in CL's case. When confronted with the patient's request for physician-assisted suicide, the clinician sought a pragmatic solution by arranging for hospice care. If terminal care could be provided perhaps the problem would be solved. I do not criticize the attempt to arrive at this type of solution because we know that, in many instances, provision of adequate pain relief and hospice services may prevent suicide. I merely emphasize that patient encounters have clinical, ethical, and pragmatic dimensions, and each requires a different approach. Furthermore, the solution to ethical dilemmas will not be found by seeking more facts (for example, determining the current status of the laws regarding right of refusal of treatment and physician-assisted suicide) because statutes will not instruct the clinician on how to reconcile the clash of his values with those of the patient.

Clinicians often encounter ethical dilemmas in their practices. Our ability to adequately address them and thereby help our patients requires that we integrate our biomedical knowledge with an understanding of the ethical aspects of patient care.⁸ In many instances our success in addressing the ethical dimensions will be as important as our clinical ability to make a diagnosis and decide on the best medical treatment. □

References

- 1 Elliott D, Finley D, Lynn J. Should doctors hasten death? *Dartmouth Medicine* 1992;35:41, 64.
- 2 Slomka J. The negotiation of death: clinical decision making at the end of life. *Soc Sci Med* 1992;35:251-9.
- 3 Klessig J. The effect of values and culture on life-support decisions. *West J Med* 1992;157:316-22.
- 4 Flack HE, Pellegrino ED. *African American Perspectives on Biomedical Ethics*. Washington, D.C.: Georgetown University Press, 1992.
- 5 Pellegrino ED. The anatomy of clinical judgments: some notes on right reason and right action. In: *Clinical Judgment: A Critical Appraisal*. Englehardt HT, Spicker SF, Towers B, eds. Boston, MA: D. Reidel, 1979.
- 6 Pellegrino ED. The healing relationship: the architectonics of clinical medicine. In: *The Clinical Encounter: The Moral Fabric of the Patient-Physician Relationship*. Shelp EE, ed. Boston, MA: D. Reidel, 1983.
- 7 Pellegrino ED, Thomasma D. *A Philosophical Basis for Medical Practice*. New York, NY: Oxford University Press, 1981.
- 8 Sadler JZ, Hulgus YF. Clinical problem solving and the biopsychosocial model. *Am J Psych* 1992;149:1315-23.

Continued

The case of CL and the resulting discussion illustrate particularly well the concerns and uncertainties of health care professionals as they make end-of-life decisions. An ethical analysis of the treatment decisions made in this case clearly indicates that the primary focus was on the individual patient and his own good in terms of health, life, well-being, and relief of pain and suffering. This case is an example of the use of the principle of beneficence. Note that various aggressive treatments were tried but, after a point, the decision was reached to stop. This decision was clearly based on the patient's own good and, in particular, on the belief that medical science could do nothing more to return the patient to health and well-being. Thereafter, hospice was involved to provide support and comfort care during the dying process.

A second ethical principle, respect for autonomy, was also an essential element of this case. Treatment decisions were all based on what the patient, himself, wanted and not simply on the opinion of the medical professionals about what would benefit him. The patient, himself, sought and requested therapy, and discussions with the patient preceded all decisions including the decision to stop treatment. However, there are limits to a health care provider's willingness to act on a patient's requests. Providers develop such limits from their training, from their personal ethical and religious beliefs, from professional codes of ethics, and from society's expectations. From a moral standpoint, respect for autonomy, properly understood, does not obligate health care professionals to provide everything a patient desires, requests, or demands. Respect for autonomy, a philosophical concept based on the writings of Immanuel Kant and John Stuart Mill, prohibits unwanted interference.¹ It prohibits us from imposing our own desires, values, or beliefs on others, but it does not require that we meet every demand others make on us. As applied to health care, the principle of respect for autonomy is meant to prevent the more knowledgeable and more powerful professional from imposing unwanted treatment on patients "for their own good." This principle is emphasized in contemporary health care ethics in reaction to the medical paternalism of earlier medical practice.

Dying, Suicide, and Advance Directives. CL's case raises questions about physician-assisted suicide and the role of advance directives, but discussion of these two very different issues must be kept separate. Sometimes a death that results from the withdrawal or withholding of medical treatment is mistakenly viewed as a kind of suicide, assisted by those who withdraw or withhold the treatment. In fact, suicide only occurs when a person dies of an externally introduced agent by intention and by his or her own hand. When death results from the patient's medical condition or any incapacity caused by that condition, such as the inability to breathe or ingest food or fluids, this is never properly described as "suicide."

Advance medical directives are perfectly legal in North Carolina. They encompass only decisions to accept or refuse medical treatment that is judged by the provider to be appropriate according to a professional standard of care. The moral basis for advance directives lies in respect for patient autonomy. They permit fully competent adult patients to exercise autonomy in advance of a time when they will no longer be capable or competent to do so. They are basically a defense against the overzealous use of medical technology to prolong life when recovery is hopeless.

Moral Arguments for Physician-Assisted Suicide. Physician-assisted suicide is a complicated issue, both morally and legally. In my view, the only plausible moral argument for physician-assisted suicide is based on the virtue of compassion (when suicide is contemplated to relieve the patient's pain and suffering). Contemporary attention to better pain control for dying patients is very important but, for some patients, control over their mental faculties is valued more than relief from pain or even the continuation of life without such control. Furthermore, the suffering of loved ones who must watch the patient die may contribute to the patient's anguish.

Arguments based on liberty or freedom do not truly apply to the morality of physician-assisted suicide. These concepts are derived from respect for autonomy which, as I noted above, does not require us to comply with others' demands or wishes. Claims of liberty or freedom cannot require that we do things against our own beliefs or values. If they did, we would always be in danger of having our own autonomy compromised by the whims of those around us.

On the other side of the issue, it is important to recognize that religious arguments against suicide are only effective when they invoke religious beliefs accepted by all individuals involved. They will not be persuasive, for example, for those who perceive the Supreme Being as a loving and benevolent Father who does not want us to suffer and who has allowed medical knowledge to provide non-violent ways (including assisted suicide) to end suffering.

Aside from the religious argument, which is always highly personal, it is difficult to find a plausible and convincing moral argument against assisted suicide as long as it is confined within a personal relationship between a physician and a fully competent adult patient who is already dying a long and painful natural death, and the patient requests help with the suicide.

Arguments based on the value of life cut both ways. It is true that society must not slide into a situation in which it values some lives over others. But in the case of physician-assisted suicide, *patients* make judgments about the value of their own lives, not to society, but to themselves—judgments based on their quality of life as actually lived and experienced. The Dutch tolerance of assisted suicide is not a good model for any country

to adopt because of its legal ambiguity and because of its well-publicized abuses.² The argument that legalized physician-assisted suicide works in practice is a doubtful one. Moreover, the fact that someone else, even a whole country, is doing something can never be a moral argument for our adopting the practice.

Must Doctors Assist with Suicide? Since physicians know how to end life in non-violent ways and are, usually, the professional experts involved with the patient's disease, they may be asked for help in dying. Need they comply? They are never morally obligated, and no moral argument (not freedom, or liberty, or respect for autonomy) can compel them. May they comply? I believe this personal decision must be based on a health care provider's own moral and religious beliefs. Those who choose not to do this must not be made to feel guilty, as though some moral or professional obligation has been ignored. There is no moral basis for such guilt, as long as physicians do all in their medical and psychological power to relieve both pain and suffering.

References

- 1 Gauthier CC. Philosophical foundations of respect for autonomy. Kennedy Institute of Ethics Journal 1993;1:21-37.
 - 2 ten Have H, Welie J. Euthanasia: normal medical practice? Hastings Center Report 1992;2:34-8.
-

III. Richard P. Vance, M.D., Section on Medical Humanities and the Department of Pathology, Bowman Gray School of Medicine, Wake Forest Univ., Winston-Salem

The problems of modern pluralism extend deeply into the goals of medicine. To quote Alasdair MacIntyre:

"To put matters oversimply: from Hippocrates until almost the present the three ends of medical practice were highly congruent with each other. To pursue any one of the three generally involved pursuing the other two also. What were those three ends? First to stave off the patient's death for as long as possible; secondly to prevent the patient's suffering, pain, or physical disability as far as possible; and thirdly to promote the patient's general health and physical well-being.... But with contemporary medicine these ends fall apart. The chronic conditions which require treatment and the technology available as the instrument of treatment allows us to continue life in such a way as to prolong suffering or to extend disability. There may be no way to promote my well-being which does not involve bringing about my death at a certain point; it may even be better for me if I had not been born. The physician or surgeon, therefore, pledged by his oath and the traditions of his profession to pursue all three ends now is forced, especially with the chronic conditions, to make choices, choices sufficiently frequent in occurrence and sufficiently harsh in character for moral choice to have become a central medical task."¹

Should assisted suicide be legal? This is a difficult question. In theory, maybe it should, because it would help patients who desire and truly need assistance, and would allow physicians who feel comfortable with suicide to provide an end to an incurable and painful disease without fear of legal complications. Yet, the dangers of abuse, miscommunication, misunderstanding, and family pressure are well known and provide a strong argument against legalization.

One problem with legalization is that physician-assisted suicide is a vague concept that is not yet adequately defined or understood. It is unclear whether it includes providing information and writing a prescription or is properly used only when the physician is physically involved in the act of suicide, handing medication to a patient or attaching an apparatus of some sort. Simply providing information seems less problematic legally than providing means, such as writing a prescription. However physicians may even unknowingly assist suicide by giving prescriptions and knowledge; intention will be difficult to prove. □

Medical ethics, especially when dealing with the difficult issues of death and dying, is plagued by the chaotic moral milieu of modern society. The "Physicians' Roundtable" in this month's *Journal* is a good example of this situation.

Where does the "Roundtable" discussion leave us? Are there some things that physicians just will not do? If the sole criterion for medical practice was "to give the patient what the patient wants," the ethics of medicine would be nothing more than the ethics of the letter carrier—delivering to each person exactly what that person orders for himself or herself. Were such the case, physicians would have no moral reason to oppose whatever a patient might want.

Are there alternatives to this view of medical practice? Some of our most perceptive scholars, like Edmund Pellegrino and Leon Kass, acknowledge fully the difficulties created by contemporary social morality. They also suggest that the medical profession can still use substantive moral resources. For these physician scholars, the very definition of medical practice states that physicians must be unwilling to abandon those members of society who are ill. Therefore, despite all the confusions of our modern moral landscape, Pellegrino and Kass argue that to be a physician one must never directly intend the death of a patient, either through active euthanasia or assisted suicide.

This ethical barrier is especially important in the modern world because of our peculiar views of death. It has often been noted that the modern world closely resembles late Roman antiquity. One characteristic we are beginning to share with that period is the acceptance of suicide. Yet there remains a significant difference between suicide in the ancient world and in our own. For the ancients, death was a matter of public concern.² Even a private suicide did not separate the dead person from the ancient community. Indeed, funeral rites ensured that the dead person would retain his or her role in the society even after death. In the modern world, however, death separates us from society, because society so assiduously separates itself from death and the dying process.

Some physicians unwittingly assist in this denial of death by unnecessarily and inappropriately prolonging the death of patients. To recognize patients that cannot be cured and to provide appropriate care as they die has been difficult because of the considerable life-prolonging power of modern medicine. Just as difficult is the decision to provide therapies intended to alleviate suffering when that treatment would also hasten or

increase the risk of death.

Assisted suicide, however, moves far beyond the desire for a peaceful, natural death. In fact, assisted suicide promotes a new and even more unnatural denial of death. Some patients would have physicians provide the means for their death at the time and place of their choosing, much as they give orders to plumbers and caterers. Assisted suicide aids in our collective denial of death by making dying an antiseptic consumer choice.

Prior to the middle of this century, physicians could do little more than teach patients how to die, and even today this activity remains central to the proper role of the physician. But it is a skill that has all but been lost in our forest of technology and specialization. In order to remain physicians—to avoid becoming mere moral bureaucrats or letter carriers—physicians must set limits on patient demands. If Medicine is to retain its professional status, it must continue to define itself in ways that some patients and some families will find objectionable. To do so, physicians must reappropriate their role as teacher to the dying patient and refuse to abandon patients even when they cannot be cured. □

References

1 MacIntyre A. What has ethics to learn from medical ethics. *Philosophic Exchange* 1978;2:37-47.

2 Redfield JM. *Nature and Culture in the Iliad*. Chicago: University of Chicago, 1975, p. 175.



SPECIALIZE IN AIR FORCE MEDICINE.

Become the dedicated physician you want to be while serving your country in today's Air Force. Discover the tremendous benefits of Air Force medicine. Talk to an Air Force medical program manager about the quality lifestyle, quality benefits and 30 days of vacation with pay per year that are part of a medical career with the Air Force. Find out how to qualify. Call

**USAF HEALTH PROFESSIONS
TOLL FREE
1-800-423-USAF**



CERTIFIED
Kodak
IMAGEWATCH
Program

DEALER

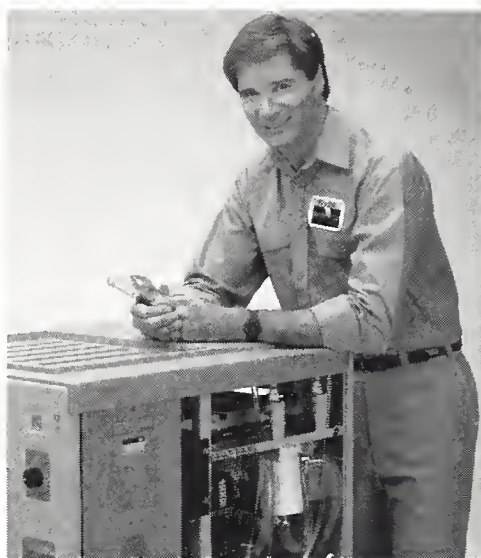
B&B XRAY

Because It's Your Image That Counts

B & B X-Ray, Inc.
704/845-8521 • 800/447-XRAY

We are proud to be among the finest medical supply dealers in the United States to be awarded this Certification by Kodak's Health Sciences Division. It certifies that:

1. Our key Service Representatives have been fully trained in the **KODAK IMAGEWATCH** Program to provide world-class service and support for KODAK X-OMAT Processors; and
2. We fully support the **KODAK IMAGEWATCH** Program's total commitment to set new world standards in the quality and value of Kodak's medical diagnostic imaging products, systems, services and support programs.



**CERTIFIED FOR
MEETING HIGHER
QUALITY STANDARDS IN
MEDICAL DIAGNOSTIC
IMAGING SERVICES AND
SUPPORT.**



Duke University Medical Center Pediatric HIV Conference

**Tuesday, September 14, 1993,
Sheraton University Center, Durham, North Carolina**

A full day's program for nurses, social workers, physicians, community workers, public health professionals, and all others dealing with infants, children, and mothers with HIV-infection/AIDS.

A multi-disciplinary program covering the current state of pediatric HIV, diagnosis and management, child protection issues, public health management, anti-retroviral therapy, nursing and psychosocial aspects, opportunistic infections, substance abuse, inter-disciplinary management of terminal illness, and the quality of life.

\$50 fee covers registration, breaks, luncheon, social hour, and CME credit.

For further information, contact Wake AHEC, Wake Medical Center, P.O. Box 14465, Raleigh, NC 27620-4465. Attention: Sonja Coble, or phone (919) 250-8547. Registration is limited.

Instructions for Authors

Manuscript Preparation

Prepare papers according to the "Uniform Requirements for Manuscripts Submitted to Biomedical Journals" (N Engl J Med 1991;324:424-8) with these exceptions: no abstract or running title are needed, and measurements must be reported in metric units (use of the International System of Units is optional).

Text (including Letters to the Editor) should be typed with one-inch margins and double-spaced. Title page should include address, and phone and fax numbers of the corresponding author. Submit two copies or a cover letter and a 3 1/2- or 5 1/4-inch computer disc with text written in MS DOS compatible format (WordPerfect, Microsoft Word, Displaywrite, or ASCII).

Submit illustrations, in duplicate, in the form of color 35mm slides or glossy photographs, or as black-and-white glossy photographs. Label them with author's name, note their position in the text, and indicate image orientation, if necessary. *Do not write on the backs of prints.* This can damage them. Type legends separately. Tables should be typed, double-spaced, one to a page. Tables must have titles and consecutive Arabic numbers.

Minimize references (no more than 15 if possible, preferably 10 or fewer). The "Uniform Requirements" cited above contain the format for references. Authors are responsible for the accuracy and pertinence of all citations. Avoid abbreviations entirely if possible, or keep them to a minimum. When used, completely define abbreviations at the first usage in the text.

Manuscript Editing

A medically qualified editor reads all manuscripts, and most are also reviewed by members of the North Carolina Medical Society. Submitted manuscripts must not be under consideration for publication elsewhere. Decisions to publish or not are made by the editors, advised by peer reviewers.

We encourage a relatively informal writing style since we believe this improves communication. Imagine yourself talking with your audience—as long as this doesn't lead you to scientific or linguistic inaccuracy. Be brief, clear, simple, and precise.

We edit accepted manuscripts for clarity, style, and conciseness. Except for letters, authors receive a copy of the edited manuscript for approval before publication.

Authors retain copyright to articles published in the *North Carolina Medical Journal*, but the North Carolina Medical Society copyrights the contents of each issue. Requests for permission to reprint all or part of an article must be submitted in writing to the address below and negotiated with the author and editor jointly. Reprinted material must carry a credit line identifying that it appeared in the *North Carolina Medical Journal*. Address manuscripts and correspondence to:

Editor, North Carolina Medical Journal
Box 3910, DUMC
Durham, NC 27710
Telephone 919/286-6410 Fax 919/286-9219

Abstracting Journal Articles

A Personal Experience

Richard T. James, Jr., M.D.

During my years of practice as a primary care internist, I had little time or energy for keeping up with the current literature. Journals piled up, most unread, many unopened, until I discarded them to make room for another pile. I was then and am now convinced that most busy clinicians, trying to balance a demanding practice with a semblance of family life, cannot adequately "keep up" with the current literature. They need help—someone to read, select, digest, analyze, and present in precise, clear terms articles of practical importance from the major journals.

When I retired six years ago, I felt I could continue to serve the world of Medicine by reviewing the major primary care journals, abstracting pertinent articles and reporting them to members of my medical group—sort of a one-man journal club. My colleagues seemed to find this helpful and interesting and suggested I continue. I now review each issue of the *New England Journal of Medicine*, *Lancet*, *Journal of the American Medical Association (JAMA)*, *Archives of Internal Medicine*, *Annals of Internal Medicine*, and *British Medical Journal*. The abstracts are printed monthly in a 20-page publication I call *Practical Pointers* (see reproduction of cover at right).

The work is "a one-man job" (I am everything from editor-publisher to sta-

pler and envelope-stuffer), but I have received encouragement from many. My patient wife is my expert proofreader. The Charlotte Area Health Education Center (AHEC) and hospitals and my colleagues at Travis Medical Group have

I am now trying to format the publication for uploading into the "Internet" network and the MEDSIG library of "Compu-serve." Then anyone with a computer and a modem would have access to my publication.

Practical Pointers for Primary Care

1992 JOURNAL ABSTRACTS

edited by
Richard T. James, Jr., M.D.

been most supportive. And I have the indispensable help of the librarians in the two medical libraries in Charlotte.

Although aimed at primary care practitioners, readers from other disciplines (nurses, pharmacists, radiologists) have expressed interest in *Practical Pointers*.

Choosing Articles

I choose articles for abstraction on the basis of my own "clinical appraisal." Does the article present anything of practical importance? Does it present something that can be immediately applied to practice? Would it lead the clinician to a change in practice? I give priority to large, original, prospective double-blind studies, but I find these infrequently. I also abstract editorials, review articles, meta-analyses, and an occasional letter to the editor (some of which contain sparkling comments).

I use the following as secondary criteria for selection: 1) Does the article put forth any new concepts (including ethical or philosophical constructs) that the well-informed M.D. should know as a basis of care and caring? 2) If not immediately practical, is the information potentially important? 3) Is the article "fun" or entertaining? I cannot critically assess articles on the basis of clinical epidemiology. Indeed, I do not think this is the purview of the busy practitioner. I rely on the peer review process of the journals for this and my own clinical experience. (The excel-

From First Charlotte Physicians, 300 Billingsley Road, Charlotte 28211.

lent "ACP Journal Club" published bi-monthly by the *Annals* presents a clinical epidemiologic approach.)

I think of the abstracts that journals place at the beginning of articles as "entrance" abstracts—an explanation of what the author put into the article, of what the author thinks it is about. I think of mine as "exit" abstracts—what I the reader personally received from the article. My abstracts are more detailed than the journal abstracts and are presented in a structured, outline form while maintaining a degree of informality.

Each month I include a "Highlights" section that contains the title of the article and a sentence or two describing the essence of the paper, similar to the index page of the *Annals*. The reader can rapidly scan the capsule-form contents for the month and read only those abstracts that he or she finds interesting.

The Problems of Information Overload and Transfer

Beyond trying to absorb information from the literature at a given time, one must be able to remember (or perhaps more importantly, to quickly retrieve) information in order to apply it should the occasion arise. Perhaps desktop computers connected to medical libraries will fill this need, but I do not believe many practitioners take advantage of this technology now (possibly because one sometimes retrieves "too much"). Because of this need for retrieval, each year I compile the "Highlights" under about 30 broad subject headings (for example, "Diabetes" or "Hypertension") much as one would save reprints in folders in a file cabinet. Since I abstract only about 250 articles each year, subject headings contain no more than six to eight references. Using this memory jogger, I can, in a few minutes, review the contents for the year. Indeed, I can easily review the most pertinent articles published on a given subject during a period of several years.

Shortly after I began publication, the hospitals in Charlotte became interested

Review of *Practical Pointers*

By Sharon Sibert, M.D., Division of General Internal Medicine, Duke University Medical Center, Durham 27710.

Editor's note: We asked Dr. Sibert to review *Practical Pointers* before Dr. James submitted the accompanying article describing his work.

As every overworked primary care doctor knows, the last thing we need is another journal that is a 'must' for keeping abreast of the current literature. Thus, when the *Journal* asked me to look at Dr. Richard James' *Practical Pointers*, my initial reaction was not particularly positive! I am, however, pleased to report now—post review—that Dr. James has done a very creditable job of condensing important information into a useful and digestible format for the primary care physician.

In the monthly publication, Dr. James abstracts papers from seven journals as well as including what he calls "Odds and Ends." The journals he surveys are widely recognized, and considered by most to be important reading. They include *JAMA*, *The New England Journal of Medicine*, *British Medical Journal*, *Archives of Internal Medicine*, *Annals of Internal Medicine* and the *Journal of Internal Medicine*. His odds and ends might be a report from a journal such as *Circulation*, as in his June 1992 abstract on "Serum Triglyceride Concentration and Prognostic Value." In contrast, he abstracted the NIH's "National Consensus Conference on Lipids" from a Lifetime TV presentation.

The cover sheet lists the topics of interest in a clear, concise manner followed by a "Highlights-Index" that provides a brief review of conclusions from each article and key quotations from the text.

Dr. James chooses articles for abstraction based on their clinical relevance and also on their design. In the September 1992 issue, for instance, he reviewed the approval of finasteride, presenting the results of the original multicenter study. This was followed by an editorial commenting on the clinical utility of the drug, the essentials of its use, indications for its use, side effects, precautions, dosing, and cost.

Particularly intriguing to me was Dr. James' inclusion of such articles as "Safety of Early Pain Relief for Acute Abdominal Pain" and "Practical Warming of Lidocaine to Reduce Pain Associated with Injection," both from the *British Medical Journal*. These are from a source I do not read routinely, and yet the information was both interesting and practical. How many times have I delayed giving pain medication to relieve suffering until the surgeon arrived—even against my intuitive feelings? This study caused me to reevaluate my previously rigid management because the authors found no adverse effect of early medication on diagnosis or management.

Each abstract reviews the purpose, protocol, results, discussion, and conclusion of the original paper. Dr. James interjects his own opinions as well as his sense of humor as evidenced in the abstract titled "Hirudens: Return of the Leech." Here he comments that it is "not a practical point at this time but I thought this preview would be interesting." The abstract concerns *Hirudo medicinalis*, which has been used therapeutically for thousands of years. The natural anticoagulant of the leech is currently being developed for systemic use as an alternative to heparin.

Finally, Dr. James publishes a semi-annual "Highlights-Index" that organizes all his abstracts under broad subject topics such as "CV," "DM," "GI," etc. This is a particularly useful feature in quickly locating references pertaining to a general topic.

I found myself curious about Dr. James and what events led to this enterprise. More intriguing, what motivates him to continue? *Practical Pointers* is a well-designed, time-saver for the primary care physician. □

and began to distribute copies of *Practical Pointers* to their staffs. The Charlotte AHEC began to distribute it throughout the state. Several years ago the McMaster University *Clinical Epidemiology Newsletter* published a brief description of my project and, as a result, I received inquiries from a number of individuals and academic centers in the U.S. and abroad. During the Gulf War I read that the American Medical Association was sending each medical officer in the area free copies of *JAMA*. Following this lead, I began to send monthly copies of *Practical Pointers* to every hospital and medical unit in the Gulf region. (The Surgeon General kindly supplied the addresses.) A number of medical officers replied expressing interest and appreciation. As a result, I now send copies to each Army, Navy, and Air Force hospital in the U.S. and abroad. My mailing list now includes almost every state and a number of foreign countries.

What I Have Gotten Back By Giving Away

The effort has rewarded me beyond expectations. First, it gave me the opportunity to try to improve my writing skills. During my practice years I wrote routine chart entries and letters—certainly not very creative writing. I had to try to learn to write English all over again. I have become aware that writing (even abstracting articles) is challenging and difficult. I have gained great admiration for those who do it well. My effort at improvement began with a copy of Strunk & White's *The Elements of Style*. It continued recently when I attended an excellent seminar on medical writing given by the *North Carolina Medical Journal*. I still have a long way to go. I am getting better.

Other rewards include learning to use a word processor and to do desktop publishing, both fascinating hobbies in themselves. A totally unexpected benefit has been my appreciation of measures to protect my own health. When I was in practice, I considered myself well versed in the lifestyle measures that we all know will improve and maintain health. But one does get a new impetus and perspective from repeatedly reviewing the numerous articles in the current literature promoting lifestyle changes. I am convinced that repetition begets compliance. At any rate, I am now more conscious of my diet, exercise, weight control, pulse rate, and blood pressure.

The publication is a public service for which I make no charge. I claim no copyright. Duplication is freely permitted and encouraged. The effort has provided me a large measure of self-fulfillment. It has brought me many new friends and correspondents, as far off as India and Tasmania. Instead of retiring into oblivion, *Practical Pointers* has kept me mentally busy and has helped me maintain continuing, stimulating relationships with younger colleagues. I challenge any retirement project to surpass it. □

YOCON[®]

YOHIMBINE HCl

Description: Yohimbine is a 3a-15a-20B-17a-hydroxy Yohimbine-16a-carboxylic acid methyl ester. The alkaloid is found in Rubaceae and related trees. Also in *Rauwolfia Serpentina* (L) Benth. Yohimbine is an indolalkylamine alkaloid with chemical similarity to reserpine. It is a crystalline powder, odorless. Each compressed tablet contains (1/12 gr.) 5.4 mg of Yohimbine Hydrochloride.

Action: Yohimbine blocks presynaptic alpha-2 adrenergic receptors. Its action on peripheral blood vessels resembles that of reserpine, though it is weaker and of short duration. Yohimbine's peripheral autonomic nervous system effect is to increase parasympathetic (cholinergic) and decrease sympathetic (adrenergic) activity. It is to be noted that in male sexual performance, erection is linked to cholinergic activity and to alpha-2 adrenergic blockade which may theoretically result in increased penile inflow, decreased penile outflow or both.

Yohimbine exerts a stimulating action on the mood and may increase anxiety. Such actions have not been adequately studied or related to dosage although they appear to require high doses of the drug. Yohimbine has a mild anti-diuretic action, probably via stimulation of hypothalamic centers and release of posterior pituitary hormone.

Reportedly, Yohimbine exerts no significant influence on cardiac stimulation and other effects mediated by B-adrenergic receptors, its effect on blood pressure, if any, would be to lower it; however no adequate studies are at hand to quantitate this effect in terms of Yohimbine dosage.

Indications: Yocon[®] is indicated as a sympatholytic and mydriatic. It may have activity as an aphrodisiac.

Contraindications: Renal diseases, and patient's sensitive to the drug. In view of the limited and inadequate information at hand, no precise tabulation can be offered of additional contraindications.

Warning: Generally, this drug is not proposed for use in females and certainly must not be used during pregnancy. Neither is this drug proposed for use in pediatric, geriatric or cardio-renal patients with gastric or duodenal ulcer history. Nor should it be used in conjunction with mood-modifying drugs such as antidepressants, or in psychiatric patients in general.

Adverse Reactions: Yohimbine readily penetrates the (CNS) and produces a complex pattern of responses in lower doses than required to produce peripheral a-adrenergic blockade. These include, anti-diuresis, a general picture of central excitation including elevation of blood pressure and heart rate, increased motor activity, irritability and tremor. Sweating, nausea and vomiting are common after parenteral administration of the drug.^{1,2} Also dizziness, headache, skin flushing reported when used orally.^{1,3}

Dosage and Administration: Experimental dosage reported in treatment of erectile impotence.^{1,3,4} 1 tablet (5.4 mg) 3 times a day, to adult males taken orally. Occasional side effects reported with this dosage are nausea, dizziness or nervousness. In the event of side effects dosage to be reduced to 1/2 tablet 3 times a day, followed by gradual increases to 1 tablet 3 times a day. Reported therapy not more than 10 weeks.³

How Supplied: Oral tablets of Yocon[®] 1/12 gr. 5.4 mg in bottles of 100's NDC 53159-001-01 and 1000's NDC 53159-001-10.

References:

1. A. Morales et al., New England Journal of Medicine: 1221, November 12, 1981.
2. Goodman, Gilman — The Pharmacological basis of Therapeutics 6th ed., p. 176-188. McMillan December Rev. 1/85.
3. Weekly Urological Clinical letter, 27:2, July 4, 1983.
4. A. Morales et al., The Journal of Urology 128: 45-47, 1982.

Rev. 1/85



AVAILABLE AT PHARMACIES NATIONWIDE

**PALISADES
PHARMACEUTICALS, INC.**

219 County Road
Tenafly, New Jersey 07670
(201) 569-8502
1-800-237-9083

Mediphors

A New Literary Journal for the Health Sciences

Doris M. Iarovici, M.D.

"I feel more confident and more satisfied when I reflect that I have two professions and not one. Medicine is my lawful wife and literature is my mistress. When I get tired of one I spend the night with the other. Though it's disorderly it's not so dull, and besides, neither really loses anything through my infidelity."

—Anton Pavlovich Chekhov, Letter to A.S. Suvorin, September 18, 1888

Among the great writers of the past few centuries, there seem to be a disproportionate number of physicians: Chekhov, Somerset Maugham, William Carlos Williams, and, in contemporary times, Walker Percy, Ethan Canin, Perri Klass, and Richard Selzer to name a few. But for each physician-writer who becomes famous, how many others sit quietly at their word processors or pads of paper after 12- or 15-hour workdays, penning poems or essays? Perhaps it is the intensity of constant immersion in life-and-death settings and in the intricacies of other peoples' lives that leaves so many health care professionals with a need to express themselves creatively. But then where to publish those creative efforts? A new journal, *Mediphors*, has recently emerged to answer this need, to provide a forum to the literary efforts of the health care community. Recently, I had an opportunity to read the first edition of *Mediphors*, and I report here my thoughts on it.

As Editor Eugene Radice, M.D., writes, "the primary goal of *Mediphors* is to encourage authorship, especially new authors in the health field...[whose] voices have a unique perspective and make enjoyable reading." The journal is run by a non-profit organization and publishes short stories, poems, essays, humor, and artwork, all of which "should have some relation to medicine and health," defined broadly. Although the authors are all health professionals, professional titles are not used in bylines, since, according to Radice, "in their artistic expression these authors are equals."

Unfortunately, in terms of quality of work, the authors are in fact not equals. Some of the poems are very poignant, and some of the stories quite interesting, but overall the journal is uneven. Even so, it makes interesting reading. Although the writing is clumsy and self-conscious in some pieces, it is fascinating to see very busy doctors and nurses spend the time and thought to reach inside themselves, to honestly express how

their work makes them feel. How it feels, for example, to be an oncologist who sees a patient "lose a 20-year struggle." Or to be a nurse, trained in the 1940s during the polio epidemics, who now hears young mothers wonder whether to immunize their children. Or to share the thoughts that run through a doctor's mind as he approaches a new patient to take a history.

The editors need to do some more careful editing. Grammatical and spelling errors make the publication seem more amateurish than it should. But considering that the editors themselves are likely doing their work during a few hours of spare time, and that this is the first issue, these problems can be overlooked. There is no mention of how submissions were solicited; perhaps the editors simply need a larger pool from which to select. The very existence of such a magazine in today's world of increasingly high-tech medicine is a breath of fresh air; if it doesn't yet meet the standards of a "literary magazine," it does allow a kind of communication between health care providers and the rest of the world that reminds us of the sameness of our fears and our needs for success and hope.

It is difficult to say whether *Mediphors* will attain the rather ambitious goal that Editor Radice sets forth (to launch writing careers), but it is on the trail of another, perhaps more necessary goal. The outlet it provides for self-expression offers an immense service to health professionals who struggle at the task. As Jerald Winakur eloquently writes in his essay, "Off Call/White Light:" "...Heal thyself! Every letter on the screen a molecule of oxygen rich heme, every word a red capillary coursing across this white light of your living life. Every paragraph a transfusion. Metaphors, a breath of air; similes to unify the whole. And as your fingers fly across the keyboard, you watch the white light diminish as your thoughts fill the screen, and you know you will survive, you know you are alive." □

If you are interested in *Mediphors*, write: Eugene D. Radice, M.D., P.O. Box 327, Bloomsburg, PA 17815.

From Duke University Medical Center, Durham 27710.

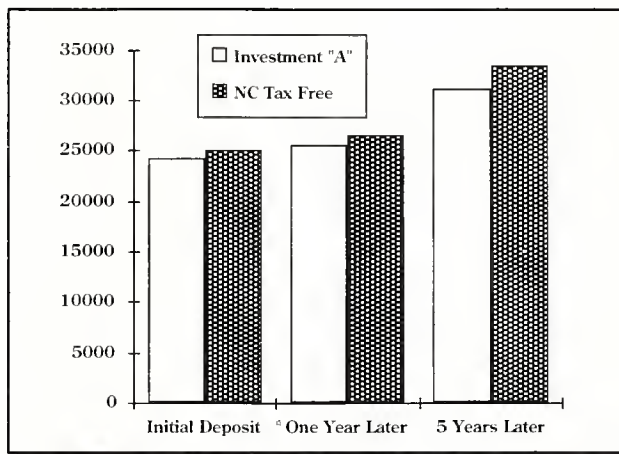
Minimum Tax. Maximum Return.

The North Carolina Tax Free Bond Fund. A No Load Fund.

Many financial experts today are predicting that municipal bonds will be among the safest, most productive investments available this decade. The North Carolina Tax Free Bond Fund provides the tax free benefits of municipal bonds with the added benefit of diversity that you get in a mutual fund.

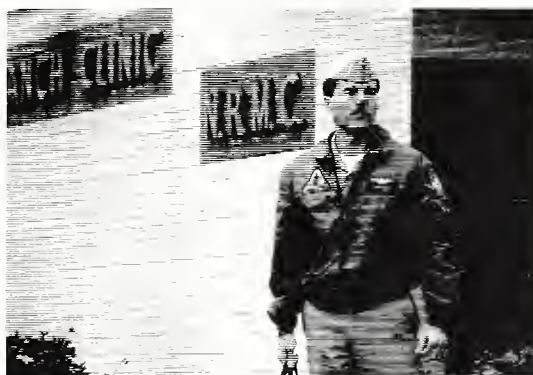
This unique fund also features NO up front commissions, NO 12b-1 fee and NO deferred sales charge. So you don't start off "in the hole" as you do with traditional "loaded" funds. Minimum initial deposit is \$10,000. Custodian is Wachovia Bank of North Carolina, N.A.

Call **1-800-525-FUND** today for more information and a free prospectus.



This chart compares the North Carolina Tax Free Bond Fund with a typical taxable fund with standard 3% up front commission. The chart assumes a \$25,000 investment in each, an 8% return for investment "A" and 6% return for The NC Tax Free Bond Fund. A 35% tax bracket is assumed. The chart is not meant to represent a projection or guarantee of future performance. Read the prospectus carefully before investing or sending money.

CHANGE THE PACE OF YOUR PRACTICE



Looking for a change of pace? Rx - the Naval Reserve requires only a few hours a month at your convenience, plus two weeks of specialized duty each year.

Combine three careers into one - civilian physician, Navy physician, and Naval Reserve officer. Experience a variety of duties. Exciting assignments. Excellent benefits.

You'll enjoy the status and prestige of being a Naval Reserve officer while working in a practice that will help you keep up with the medical technology of tomorrow.

Call today: **1-800-443-6419**



NAVAL RESERVE

You and The Naval Reserve. Full speed ahead.

"Despite what you may have heard about the military getting smaller, the Naval Reserve still has many jobs for healthcare professionals."

The North Carolina Medical Journal

Recommended Reading for All Physicians and Health Care Professionals



Each month, the **Journal** presents a lively and diverse mix of medical and health care-related topics, from scientific to socioeconomic, plus a special pull-out section written for patients.

Physicians in all specialties as well as health care professionals in other fields read the **Journal** because it provides them with information pertinent to their community, their practices, and their professions.

Subscription to the **Journal** is a benefit of NCMS membership. Use this form to order individual subscriptions at \$17 a year, or treat a colleague to a 1-year gift subscription by filling out the coupon below.

Method of Payment:

☐ \$17 Check/money order enclosed, payable to: **North Carolina Medical Journal**. (NC residents add 6% tax = \$18.02)

☐ Charge to: VISA _____
M/C _____

Name on Card: _____

Account #: _____

Expiration Date: _____

☐ New ☐ Renewal

Send to: The **North Carolina Medical Journal**, Box 3910, Duke University Medical Center, Durham NC 27710.

Please start my 1-year subscription*:

My Name _____

Address _____

City/State/Zip _____

Please send a 1-year gift subscription to*:

Name _____

Address _____

City/State/Zip _____

*Please allow 4-6 weeks for delivery of the first issue.

Health Watch

VOLUME 54 / NUMBER 7 / JULY 1993

Family Violence

CHILD ABUSE

Joan S. McAllister, MSW

Q *It seems like there are newspaper stories every week talking about kids being abused. Is the problem of child abuse getting worse, or are people just more aware of how to report?*

A Statewide reports of child maltreatment in North Carolina have steadily increased. Reports nearly doubled between 1987-88 and 1991-92, from 24,418 to 48,146 reports. Based on current reporting rates, we can expect to receive around 56,000 reports involving between 85,000 and 90,000 children in 1992-93. Evidence of abuse and/or neglect continues to be found in about a third of the cases reported. Some of the increase in reports is probably due to greater public awareness of reporting procedures, but we must also assume that there has been a significant increase in the incidence of child abuse and neglect.

Q *I really don't want to get involved. Why should I be the one to call social services?*

Ms. McAllister is a Consultant with the North Carolina Division of Social Services, Child Protective Services Branch, 325 N, Salisbury St., Raleigh, NC 27603.

A North Carolina law requires that any person or institution who has cause to suspect that any juvenile is abused or neglected shall report the case of that juvenile to the director of the department of social services in the county where the juvenile lives or is currently found. Reports may be made orally, in writing, or in person. The person who makes the report is immune from criminal or legal liability if the report was made in good faith. The person reporting is encouraged to provide his/her name to the agency, but anonymous calls are to be considered by the same standards as reports made by persons who give their names.

Q *Some of my friends tell me that they have reported children being mistreated, and that social services didn't do anything. What will social services investigate?*

A The laws defining the role of social services in response to allegations of abuse, neglect, and dependency are quite detailed. Generally speaking, a parent or caretaker who has physically abused a child is a person who has intentionally inflicted serious injury, or who has willfully placed the child in danger of such injury. A parent or caretaker who has sexually abused a child has committed or has allowed to be

committed a criminally defined sexual offense against a child. Neglect is generally defined as failure to provide proper supervision, discipline, or care to a child to the extent that a child's physical, mental, medical, or emotional status is impaired. For legal purposes, a child is declared **dependent** when a parent or caretaker is either not available or is unable to provide care or supervision for the child.

When the department of social services receives a report, the intake worker and supervisor must first determine if the allegation meets the legal definition of abuse, neglect, or dependency. The department has jurisdiction only when the alleged maltreatment falls within legal definitions and was committed or allowed by the parent or caretaker. If the report is accepted for investigation, the Child Protective Services worker will talk with the child, family, alleged perpetrator, and others known to have knowledge of the situation. The department will make every reasonable effort to help families work out their problems together by providing services while the child remains in the home. Children are only removed from their families if the danger to the child is so grave as to outweigh the damage caused by this separation.

A person who reports abuse, neglect, or dependency has a right to challenge the department's decision not to investigate through an agency review process. In addition, if the department decides not to file a petition to involve the juvenile court in removal or court-ordered treatment, the reporter can request a review by the district attorney.

Q *Why would anyone mistreat a child?*

A Incidents of child abuse and neglect occur in every social and economic class, involving people from every walk of life. Most people who have abused or neglected their children did not intend to cause any harm. Sometimes a crisis can temporarily affect a person's ability to cope with the stresses of parenting. Many of these parents were mistreated themselves as children, and do not know other ways to handle discipline. Many use drugs or alcohol to excess, and sometimes lose control of their behavior. Many are overwhelmed by economic or other social pressures, and take out their frustrations on their children. Some have emotional problems. Some are ashamed to ask for help, and others don't know what help is available or how to get it. Some do not know reasonable expectations for children's behaviors. Only a few parents are intentionally cruel to their children.

In most cases of abuse and neglect, families can be helped to provide at least minimally sufficient care for their children. Departments of social services can help families locate the help they need. Support services such as counseling, day care, child development education, and parenting classes are frequently provided to help families work through their problems together.

Q *My neighbor leaves her seven-year-old little boy alone in the house from the time he gets home from school until*

she gets home from work. Sometimes this means he is alone for over three hours. Isn't this against the law?

A The only law in North Carolina which addresses the question of the age of a child left alone is G.S. 14-318, which states that a child under the age of eight years shall not be left unsupervised and confined in any building, so as to expose the child to danger by fire.

North Carolina supports the rights of local departments of social services to establish minimal standards of sufficient care which are appropriate to the unique, cultural standards of their community. It would be impossible to dictate a single set of standards on issues such as these. However, parents should consider certain issues in guiding their decisions:

1. How mature is the child? Children mature at different rates. How does the child handle responsibilities when not supervised closely? Does the child remember to do his or her homework, to feed the pets, to lock the door?
2. How does the child feel about being left alone? Some children are fearful or timid by nature and would be too frightened to be alone, while others are self-assured. The parent should consider the child's ability to "think on their feet" in unfamiliar situations.
3. What is the level of the child's communication skills? If there were an emergency, could—and would—the child communicate the need for help to a responsible adult? Does the child know his own address, telephone number, and where the parents can be located? Does the child know about emergency numbers, such as a trusted neighbor or 911? Does the child know how to respond to unexpected visitors? Can the child tell you what they would do in an emergency without his or her answers being coached?
4. What support systems are available to the child? Who can be contacted for help? Who is willing to be available to the child? Do the neighbors or accessible relatives know that the child is alone?
5. What responsibilities does the child have while they are alone?
6. What are the "house rules" about using appliances, the telephone, or having friends in the house when the parent is away?
7. Does the child have physical or emotional handicaps that would interfere with his or her ability to handle the responsibility of being left alone?
8. Are there qualities of the home or neighborhood that present additional hazards, such as drugs, crime, traffic, etc.?
9. Has the parent prepared the child for being alone?

Q *My husband works, and I stay home with my three-year-old son. Sometimes the pressure gets so bad I can barely control my temper with him. I'm afraid I might "lose it" some day and hurt him. It really scares me.*

A Most parents have these feelings from time to time. Here are some ideas that may help deal with your feelings:

1. Take a deep breath. Then another. Try to remember that you are the adult.
2. Close your eyes and imagine you are hearing what your child is about to hear.
3. Count to 10... or maybe 20.
4. Call a friend. Call Parents Anonymous if a chapter is available in your area.
5. If someone can watch your son, take a walk, or a long warm bath.
6. Do something vigorous, like scrubbing the tub or vacuuming the floor. Make a game of it, and invite your son to help.
7. Call or write the department of social services, mental health center, school, or other local resource for information about how to handle children of this age more effectively. In many areas of the state, there are classes available to help understand why kids act the way they do.

Q *The other day while I was in the grocery store, a child about two years old was screaming bloody murder. The mother grabbed him by the arm and was smacking him on the bottom and hands because he grabbed something off the shelf. I got really nervous and didn't know what to do.*

A This is a very difficult situation. If you can "defuse" the situation by sympathizing with the parent or distracting a child who is about to get in further trouble, the immediate results are usually better than if you try to confront the parent. Empathizing or distracting statements might include:

- "He seems to be trying your patience."
- "Kids can wear you out, can't they? Is there anything I can do to help?"
- "Your daughter surely has beautiful eyes!"

Starting a conversation with the adult or the misbehaving child may help to divert their attention from the intensity of the moment. If you are fearful for the child's safety due to lack of supervision, you can offer assistance. If you know the parent, you can offer to supervise while the parent finishes their shopping or takes a break.

If you are unable to intervene and believe the child to be in danger of harm, notify the store manager to call the local department of social services. Someone is on call 24 hours a day, seven days a week.

Q *My parents were pretty rough on me growing up, and I don't want to make the same mistakes with my daughter. I'm worried that I am going too far in the other direction, and that she's getting spoiled. She is three and a half years old, and everybody gives her everything she wants. I don't know whether to discipline her or not.*

A Many parents share your fears. The word discipline has often been used to describe punishment, such as spanking or

criticism. Actually, the word discipline comes from the same root word as disciple, which means student. To discipline is to teach. Children need discipline to learn self control, to learn limits, and to learn to get along with others.

Children need rules. Young children usually need more rules than older children. Be careful, however, not to impose too many rules. For young children, rules should address important issues, such as playing with matches and crossing the street alone. Rules should be appropriate for the child's age and development. For example, it would be unreasonable for a child your daughter's age to be expected to feed a pet without being reminded.

- Praise a child for good behavior. Try to watch for opportunities to praise the child's efforts.
- Even young children can be involved in developing rules. Children are less likely to break rules they helped to develop.
- Make sure the child understands the rules and the penalties for breaking them. Make sure that your spouse understands the rules, too, so both of you can be consistent in responding.
- Act quickly when a child misbehaves, following through on the stated penalty. Try not to get into power struggles with your child.
- Help your child develop control by keeping temptation to a minimum.
- Nagging and criticism are ineffective and destructive means of punishment. Try to state your concerns positively.
- You can expect your child to test the limits to make sure you mean what you say. This is healthy and normal.

"Time out" is a method of discipline which works well even with young children. Find a place in your home that is safe (but boring), in which you can place a chair. This "time out" space is used to have the child think about his or her behavior. When the child breaks a rule, he/she is to sit in the chair for a designated period of time. A good rule of thumb is to have one minute of time out for each year of the child's age, up to a maximum of ten minutes. Be sure that the child knows what behaviors will result in "time out." When the time is up, allow the child to return to his or her normal activities.

Q *How can I tell if a child is being abused or neglected?*

A Children who have been chronically abused or neglected may show some of the following signs:

- bruises in areas not normally subjected to bruising, such as on the face, non-bony areas of the arms, legs, and/or torso;
- clothing exceptionally filthy, or consistently inappropriate for the weather;
- child seems unusually afraid of one or both parents;
- child frequently seems tired, without energy;
- child has "vacant" stare;
- child is habitually absent from school, to allow for healing of injuries;

- child displays extreme behavior, such as aggressiveness or withdrawal; or
- child has consistent problems in getting along with others.

Q *Are there particular signs which suggest sexual abuse?*

A Children go through normal developmental stages in which they are more interested in sexuality, both their own and that of other people. Parents would be wise to become familiar with these developmental stages. However, both boys and girls who are being sexually abused do demonstrate behaviors which warrant further investigation. Some of these signs are:

- a sudden change in behavior, such as discomfort with a particular person;
- a change in eating patterns;
- a change in school performance;
- physical signs of sexual abuse, such as irritation around the genitals or rectum, or an abnormal discharge;
- unexplained, recurring urinary tract infections;
- increased, obsessive masturbation; or
- play activities which have sexually inappropriate themes.

Q *What can I do to protect my children from child molesters?*

A The most important way that you can protect your children is to teach them self-protection, and to feel comfortable telling you when something is wrong.

Teach them that their bodies are their own. This means that they have a responsibility to take care of them and to protect them from harm. Your children have a right to their feelings, and they can trust those feelings when something "isn't quite right."

There are different kinds of touch. Good touch makes us feel good, like hugs. Bad touch feels bad, like being hit. Confusing touch may involve touch that starts out feeling good, but then starts feeling strange, such as tickling or touching of private parts. No one has a right to touch children under their clothing.

Teach your children that they have a right to say "NO!" to people who touch them in bad or confusing ways. Tell them that they should then get away from that person, and tell someone they trust.

If children tell you they have been molested, it is important that you listen calmly, that you reassure them that they did the right thing in telling you, and that you take action to

protect them. Report the incident to the local department of social services, who will handle the investigation directly and/or will report to law enforcement as required by law.

Q *I was sexually abused by my father from the time I was eight until I was thirteen. I never told anyone then, but recently I told my third husband. He thinks I need to see a therapist. I don't see that it would do any good now.*

A Sexual abuse, like physical and emotional abuse, frequently has long-term effects which can interfere with a person's life. Common effects of such abuse include difficulty in trusting others, problems with authority, learning problems, eating disorders, low self-esteem, sexual dysfunction, substance abuse, and relationship problems. Therapy directed at confronting the abuse can help adult victims to understand these effects and to change their unhealthy behaviors.

If you are interested in exploring therapy, be sure to find a therapist who has experience in dealing with adult victims of sexual abuse. There are no "quick fixes" in sorting through the damage of abuse, but therapy can help if you are willing to work with a competent therapist. Support groups are another good and helpful resource in learning that you are not alone in your struggle. If you have access to a women's resource center or rape crisis center, these are usually good sources for referrals to qualified therapists and support groups.

Q *What should I do if I am reported to Child Protective Services?*

A Don't panic. The responsibility of the child protective services worker is to ensure the safety of your child while offering reasonable services to help your family stay together.

Cooperate with the investigation. Not only is it illegal to interfere with an investigation, it also doesn't help the situation at all. Answer questions honestly, and discuss any information which would help the social worker understand the circumstances about the allegations. Be assertive, and participate in planning. Encourage your children to tell the truth, and make them available for interviews with the social worker.

If you want help, let the social worker know. They will have knowledge about resources in your area that may help you to make your life less stressful. □

1993

August.....*Drug Addiction*

September*Sexual Addiction*

Breast of chicken



3-oz. cooked serving
of chicken breast

Best of pork



3-oz. cooked serving
of pork tenderloin

Today's Pork: Compare it to chicken for a healthy surprise

You may not have considered pork to be a healthy choice for your patients on fat-modified diets. But today's fresh pork compares surprisingly well to chicken in total fat, saturated fat, cholesterol, and calories.^{1,2*}

Compare pork with chicken^{1,2*}

	Calories	Total Fat	Saturated Fatty Acids	Cholesterol
Chicken Breast, skinless	140	3.0 g	0.9 g	72 mg
Pork Tenderloin, trimmed	139	4.1 g	1.4 g	67 mg
Pork Top Loin Roast (boneless), trimmed	165	6.1 g	2.2 g	66 mg
Center Loin Chop, trimmed	172	6.9 g	2.5 g	70 mg
Chicken Thigh, skinless	178	9.2 g	2.6 g	81 mg

*Table refers to 3-oz. cooked servings.

New study: Pork is now 31% leaner

Pork is leaner today because of significant changes made in breeding and feeding techniques.¹ According to new 1992 official USDA data, fresh pork sold today contains an average of 31% less fat after cooking and trimming than the same pork cuts reported in 1983.¹

Today's pork fits well within the dietary guidelines recommended by both the American Heart Association and the National Cholesterol Education Program. Here's some advice to help patients on low-fat diets enjoy the variety, extra taste, and versatility of pork:

- Choose the leanest cuts. Shop for cuts with "loin" in the name.
- Trim away any visible fat.
- Keep portions moderate (about 3 oz, cooked).
- Prepare by broiling or roasting, and avoid additional fat in preparation.

1. US Dept of Agriculture. *Composition of Foods: Pork Products*, 1992. Agricultural handbook 8-10.

2. US Dept of Agriculture. *Composition of Foods: Poultry Products*, 1979. Agricultural handbook 8-5.

Recommend

TODAY'S PORK

The Other White Meat®

Lung Cancer in North Carolina

Barbara K. Rimer, Dr. P.H.,¹ Dale Herman, M.S.P.H.,² Jeffrey Crawford, M.D.,³ and Susan Blackwell, P.A.-C³

In 1991, 2,694 North Carolina men and 1,168 North Carolina women died of lung cancer. Lung cancer is second to prostate cancer in incidence among men, but it far exceeds prostate cancer as a cause of death. Lung cancer is the third most common cancer among women, behind breast and colorectal cancers. By 1990, lung had surpassed breast cancer as the leading cause of cancer deaths in North Carolina women.

In this report, we examine North Carolina lung cancer trends, including differences by birth cohort, race, gender and region of residence. By understanding sociodemographic, temporal, and geographic trends, physicians can direct their efforts where they will have the greatest impact. In addition, we provide a brief overview of recommendations about screening for lung cancer and the status of treatments available.

Lung Cancer Deaths in North Carolina

Figure 1a-d, opposite page, show lung cancer mortality rates by birth cohort for each race and sex group from 1960 to 1990. The mortality rates for white male birth cohorts rose progressively until the 1916-1925 cohort (Figure 1a), after which subsequent cohorts had either no increase in lung cancer mortality or possibly a slight decrease. The rate for non-white males increased until the 1926-1935 co-

hort (10 years later than for white males), and then decreased for the 1936-1945 cohort (Figure 1b). These data support the hypothesis that lung cancer may be on the decline among males.

The fact that lung cancer incidence is higher among young non-white males, as well as higher among older white males suggests that a temporal shift may be occurring. White males in the 1896-1905 cohort had higher mortality rates than their non-white counterparts. The rates for the cohorts born between 1906 and 1915 are closer together, but whites still had higher rates. Beginning with the 1916-1925 cohort and continuing for each successive cohort, lung cancer mortality for non-white males surpasses that of whites. A comparison of white and non-white female rates does not show such a clear pattern. Since 1906, cohorts of white females have had higher rates overall than non-whites, but there is some variation, most likely due to the small numbers of deaths, especially among non-white females (five deaths in 1960, 40 in 1970, 83 in 1980, and 184 in 1990).

In contrast to men, there has been no decline in lung cancer among women. Each successive cohort of white and non-white females has experienced higher mortality rates than the preceding one (Figures 1c and 1d). Lung cancer mortality rates for women nearly doubled between 1970 and 1980 and again between 1980 and 1990!

The incidence of lung cancer in white

women exceeds that in non-white women for all ages except the oldest. The incidence of lung cancer is much higher in men than in women, and the pattern by race is different. Non-white men have a higher incidence than whites until age 65, after which whites have a much higher incidence. We expect these patterns to change in the future as the effects of changes in smoking behavior become evident. In general, the mortality patterns are similar to incidence because lung cancer is usually diagnosed late and has a poor survival.

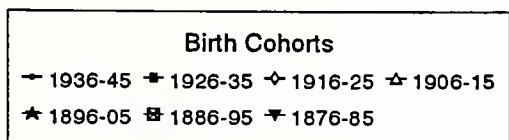
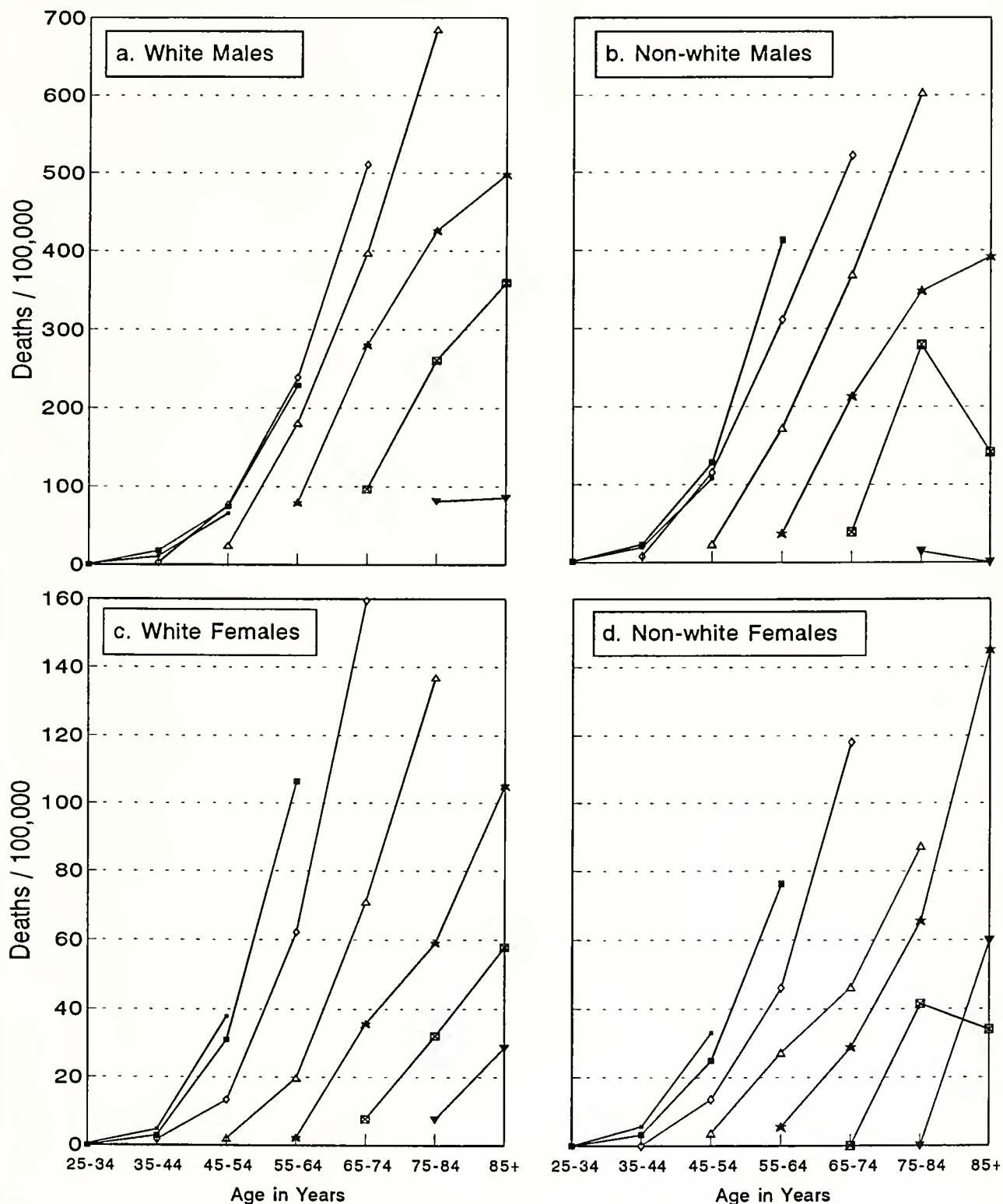
The Scope of the Problem in North Carolina

Figure 2, page 336, portrays the age-adjusted lung cancer mortality rates in North Carolina for the period 1986 to 1990 by county. The mortality rates were higher in the Coastal Plain than in the Piedmont or Mountains. When analyzed by sex, mortality rates for men were highest in the Coastal Plain, and for women over the age of 65 were higher in the Piedmont and Coastal Plain than in the Mountains.

Table 1, page 336, shows the 1990 distribution of lung cancer cases by stage at diagnosis for race, sex, and residence group. The vast majority of lung cancers are diagnosed late (when already non-localized), and this is the major factor

From ¹Cancer Prevention, Detection, and Control Research, Box 2949, Duke University Medical Center, Durham 27710; ²North Carolina Central Cancer Registry, P.O. Box 29538, Raleigh 27626; and ³Division of Hematology/Oncology, Department of Medicine, Box 3198, Duke University Medical Center, Durham 27710.

Figure 1a-d: Age-specific lung cancer mortality rates by birth cohort for white males, non-white males, white females, and non-white females in North Carolina, 1960-1990. (Source: North Carolina State Center for Health and Environmental Statistics, Raleigh)



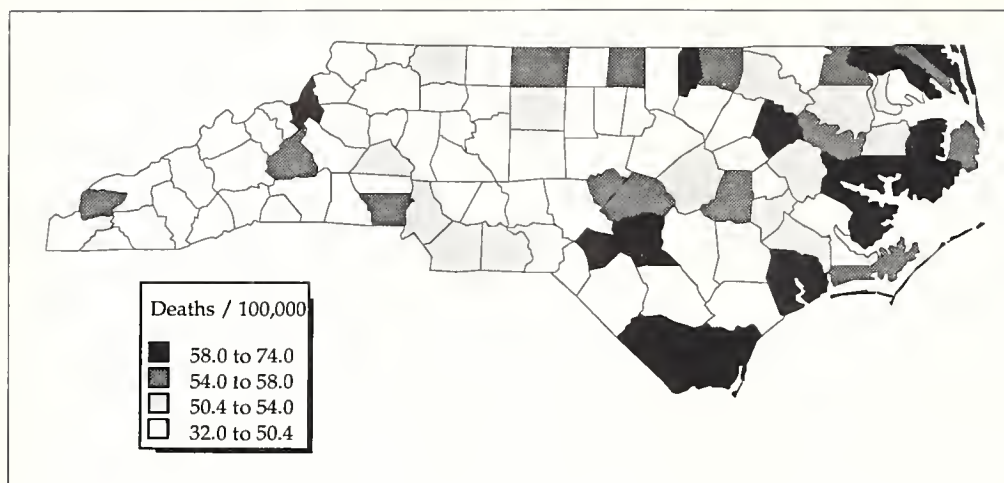


Figure 2: Age-adjusted lung cancer mortality rates, 1986-1990

contributing to poor survival in this disease. In whites, there is no discernible difference in stage at diagnosis between males and females or between urban and rural residents. The apparently large percentage of rural non-white females diagnosed at early stages of disease may be an artifact due to the small number of non-white women diagnosed with lung cancer. An examination of stage at diagnosis

by region shows little difference between the regions (Table 1), but a distinctly later stage at diagnosis for non-whites in each of the regions.

These data highlight the following points:

1. Lung cancer mortality among women is increasing. Because of the poor survival and short time span between diagnosis and death, it is likely that

incidence of lung cancer in women is also increasing. Mortality rates among women have doubled about every 10 years, and lung cancer has now overtaken breast cancer as the leading cause of cancer deaths among women.

2. Among men, it appears that the lung cancer "epidemic" has peaked and may be declining. Lung cancer mortality rates have not increased since the 1916-1925 cohort in white males and the 1926-1935

cohort in non-white males.

3. Lung cancer mortality rates in non-white males surpassed those in white males beginning with the 1916-1925 cohort and have remained higher for each successive cohort.
4. Mortality rates for men in 1990 were higher for Coastal Plain residents than for residents of the Piedmont or Mountains.

Table 1. Distribution of lung cancer (localized or non-localized) by place of residence

	Urban setting		Rural setting			
	*N	*Loc / Non-loc	N	Loc / Non-loc		
White males	916	23% / 77%	1,041	22% / 78%		
White females	550	22% / 78%	445	22% / 78%		
Non-white males	200	21% / 79%	220	12% / 88%		
Non-white females	86	15% / 85%	67	25% / 75%		
	Coastal Plain		Piedmont		Mountains	
	N	Loc / Non-loc	N	Loc / Non-loc	N	Loc / Non-loc
White males	498	23% / 77%	1,224	22% / 78%	235	25% / 75%
White females	249	24% / 76%	621	20% / 80%	125	27% / 73%
Non-white males	184	15% / 85%	227	16% / 84%	insufficient numbers	
Non-white females	64	17% / 83%	82	17% / 83%	insufficient numbers	

*N = number of lung cancer cases

*Loc / non-loc = cancer localized to lung at diagnosis / cancer spread beyond lung at diagnosis

5. Diagnosis at later stages of disease may contribute to the poorer survival of non-whites compared to whites. There was no clear difference in stage at diagnosis by sex, urban or rural residence, or by region.

Use of Tobacco in North Carolina

The decline in lung cancer mortality among men follows a dramatic decrease in the proportion of men who are current smokers. Figure 3 shows this decrease from 1955 to 1988 for the entire country. (We have no data on the prevalence of smoking in North Carolina before 1988, but the proportion of North Carolina adults who were smoking in 1988 was similar to that for the entire country.) The proportion of male smokers is now about half what it once was. Unfortunately, the proportion of women who are smokers has shown only a modest decrease. The proportion of men who smoke began to decrease in the mid-1950s, but the decline among women did not start until at least the mid-1960s and possibly later.¹ As a consequence, lung cancer mortality rates for men are now declining, but those for women continue to rise.

Primary Care Physicians Can Prevent or Stop Tobacco Use

The best strategy for avoiding death from lung cancer is to prevent tobacco use. A recent review showed that, independent of race and ethnic group, children began to smoke when they were as young as nine and that the rate of beginning to smoke increased through adolescence. School-based interventions, as well as environmental and policy changes such as bans on tobacco advertising and restrictions on sales to minors, can be extremely powerful.²

Pediatricians and primary care physicians should query their young patients about smoking and give an unequivocal message about its deadly dangers. Even young patients may need help in quitting

because many are addicted to tobacco.

Primary care physicians can play a central role in helping their smoking patients to stop. Glynn and Manley estimated that as many as 4.5 million smokers in the U.S. might be motivated to quit if 150,000 office-based physicians would participate.³ Physician interventions ranging from brief advice to more intensive counseling or referral can have an important, cost-effective impact in getting patients to stop smoking.⁴⁻⁷ And training physicians in counseling can make them even more effective in helping their patients to stop.⁸ Most physicians reportedly lack confidence in their ability to help patients quit, but they should view smoking as a chronic disease to be monitored at each visit. Even small steps can finally result in the patient stopping.

The National Cancer Institute recommends a four-step smoking cessation

protocol to assist physicians.³ The steps are:

- 1) ask about smoking at every opportunity;
- 2) advise patients to stop;
- 3) assist the patient in stopping; and
- 4) arrange follow-up visits.

Within the context of a smoke-free office, physicians should take a smoking history on all patients and label the charts of smokers.⁹ A smoking history should be recorded with the vital signs at intake. At every encounter, all smokers should be given a strong message to quit, encouraged to set a quit date, and informed that the physician will monitor their progress on subsequent visits by entering progress notes into the patient's chart.¹⁰ Minimal contact interventions (for example, brief counseling, a plan for cessation, and self-help guides) should be offered to all patients who express an inter-

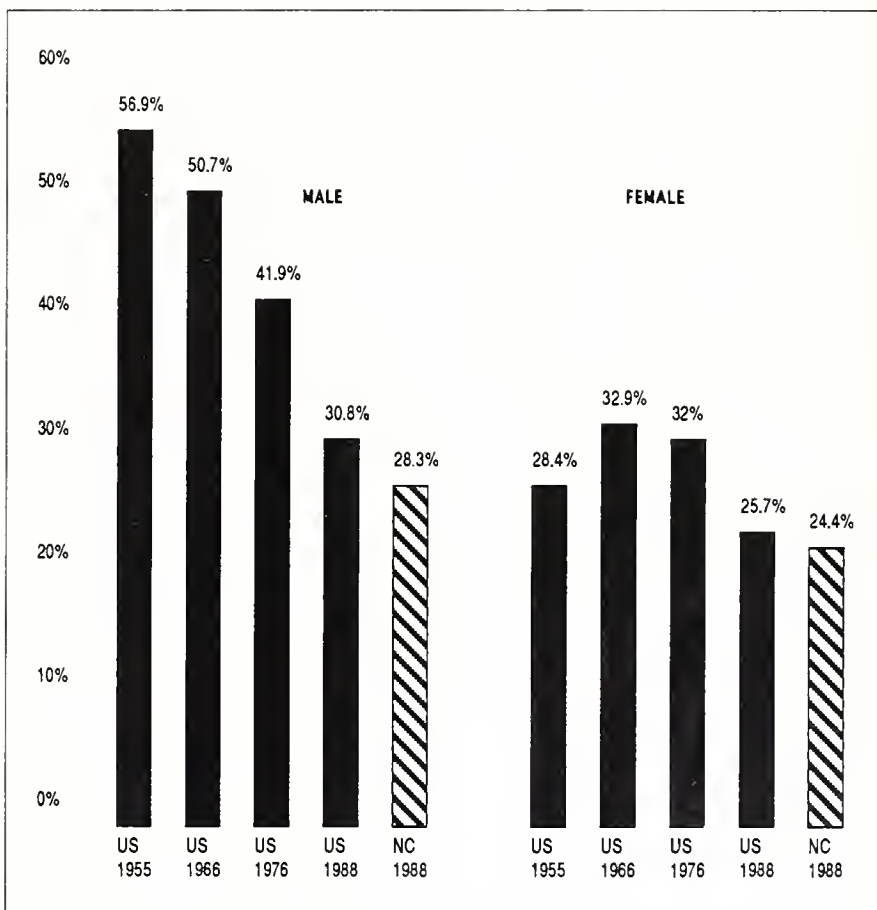


Figure 3: Percent of persons 18 years of age and over* who were current cigarette smokers, U.S. 1955-1988, NC 1988. (*Data for 1976 were reported as 20 years of age and over. Sources: National Center for Health Statistics, Centers for Disease Control.)

est in quitting. Finally, intensive treatments offered within the practice or by outside referral can improve on do-it-yourself programs and tend to attract smokers who need extra help.⁶ However, most patients prefer to quit on their own without participating in formal programs.⁹

Clinical trials show that physicians trained to provide "behavioral cessation counseling" help more patients quit smoking (8.45% quit) than physicians who provide advice only (3.6%).¹¹ Intensive physician interventions can produce quit rates of 20%-25%.¹⁴ Any intervention is good, but more is usually better.¹³ When smokers leave the doctor's office without a recommendation to stop smoking, they may perceive tacit approval for continuing to smoke.¹⁴ The North Carolina data on lung cancer incidence and mortality indicate that physicians should pay attention to counseling women smokers to quit and young people not to begin or to stop smoking before becoming addicted. Physicians in eastern North Carolina have a particular challenge because lung cancer rates are generally higher in the Coastal Plain than elsewhere in the state.

Pharmacological Aids to Smoking Cessation

Nicotine addiction has three components—habit, pleasure, and self-medication.⁹ Recognition of the addictive properties of nicotine has led to pharmacologic treatments to combat withdrawal symptoms.¹⁵ Nicotine gum relieves some of the most disturbing aspects of withdrawal—anxiety, decreased mental concentration, and diminished task performance. Randomized controlled trials show its efficacy when used with a behavioral intervention, such as counseling.^{16,17} One drawback is that nicotine gum is often used incorrectly—patients may use too little or not follow directions for use.

Transdermal nicotine patches have shown promising results and may have greater acceptability. Transdermal patches efficiently deliver nicotine, are easier to use than gum, and produce a more steady blood level of nicotine. Patches reduce some, but not all, symp-

toms of withdrawal, and side effects are modest.⁹ Several trials show significant superiority of active over placebo patches, but end-of-treatment cessation rates vary.⁹

Fiore suggests that patches are most appropriate for patients who smoke 20 or more cigarettes per day, who smoke their first cigarette of the day within 30 minutes of arising, and who have experienced strong cravings during previous quit attempts.⁹ Six to eight weeks of patch use is usually appropriate. In some patients, both nicotine gum and a patch may be helpful,¹⁷ and even newer treatments, such as nicotine inhalers, look promising. However, pharmacologic treatments are not a panacea. Patients still need behavioral intervention to help them quit for good.

Screening to Detect Early Lung Cancer

Patients diagnosed at an early stage of lung cancer are far more likely to be cured than patients with advanced disease. However, for more than 30 years only an unchanging 10% of lung cancer is diagnosed at a localized and resectable stage. This implies that screening and early detection programs are largely unsuccessful.^{18,19} Prospective randomized studies have used serial chest radiographs and sputum cytology to screen more than 30,000 male smokers over the age of 45. Preliminary results show that lung cancers were found at earlier stages in screened patients and that these patients had a higher five-year survival rate than control groups. Radiographs detected more early stage lung cancer than sputum cytology, but cytological evaluation did increase early stage detection over control groups. About 80% of patients detected in surgical stage I were alive at five years after surgery, but most patients (45%-60%) were in surgical stage II or III at diagnosis, and less than 15% of them survived for five years. Even intensive screening does not detect most lung cancers at a curable stage, and no studies demonstrate that intensive screening lowers the death rate from lung cancer.¹⁹ Therefore, neither the American Cancer

Society nor the National Cancer Institute presently recommend screening for lung cancer—there is no evidence of benefit, but there is risk from the diagnostic irradiation.¹⁹

Mass screening for lung cancer is not indicated, but there may be some benefit to screening targeted high-risk groups. O'Rourke and colleagues at Duke suggested that lung cancer may be found at earlier stages in older patients. Data from 22,874 cases in the Centralized Cancer Patient Data System show that local stage lung cancer was found in 15.3% of patients under age 54 but 25.4% of those over 74. Perhaps in the future we will be able to define appropriate populations who will profit from screening.²⁰

Treating Lung Cancer

A correct pathological diagnosis is essential to rational treatment. Flexible fiber-optic bronchoscopy allows easy visualization of the tracheobronchial tree and provides biopsy specimens, bronchial washings, and brushings. Percutaneous transthoracic needle aspiration under thoracoscopic or computed tomographic guidance can be helpful in making the correct tissue diagnosis. If less invasive procedures fail, the patient may need mediastinoscopy or exploratory thoracotomy.¹⁸

Once a tissue diagnosis has been made, appropriate staging of extent of disease is important because it provides prognostic information, directs choice of therapy, and permits comparison of results from different clinical treatment series.^{18,19} The patient's pulmonary status, performance status, and other physiological variables must also be considered in judging whether the patient can tolerate surgery, radiation therapy, chemotherapy, or multimodal combination therapy.¹⁸

Treatment of Small Cell Lung Cancer

Because most small cell cancers are already advanced when detected, lung can-

cer staging is less critical for small cell than for non-small cell lung cancers. Limited stage small cell lung cancer is defined as that localized to one hemithorax and its regional lymph nodes; extensive stage disease includes all more widespread tumors. Approximately 3% of small cell lung cancer patients present with a solitary peripheral nodule, and surgical resection in these patients gives a five-year survival rate in excess of 30%. Surgery should be considered as primary treatment of patients presenting with stage I disease. These patients should be considered for adjuvant chemotherapy with or without radiation therapy once they have recuperated from surgery.²¹

Chemotherapy is the most important component of small cell lung cancer treatment because the disease is usually widespread and because small cell lung cancer responds to chemotherapy. Patients with limited stage disease treated with combination chemotherapy survive for a median of 14-15 months, and those with extensive stage disease, nine months. By contrast, the median duration of survival for untreated small cell lung cancer patients is four to eight weeks. About 13% of patients with limited stage disease, but only 2% of those with extensive stage disease, achieve two years of disease-free survival.²¹

Small cell lung cancer is usually quite sensitive to radiation therapy. Unfortunately, at relapse after chemotherapy, small cell lung cancer appears to be clinically less sensitive to radiation. Because of this, radiotherapy is best used early in treatment in combination with chemotherapy.

Treatment of Non-Small Cell Lung Cancer

Surgery. Non-small cell lung cancer accounts for 75% of all lung cancers, and 30% of patients present with clinical stage I, II, or IIIa disease. Surgery to completely resect the tumor while preserving as much normal lung tissue as possible is the treatment of choice.¹⁹ Patients with extensive stage II or III disease may require pneumonectomy. The five-year survival rate after surgical resection for stage I cancer is 60%; for stage II, 40%; and for stage IIIa, 10% to 20%. Unfortunately, a significant number of patients develop metastasis or recurrence and die within two years after even apparently complete resection of their lung cancer. Pre- and post-operative radiation has shown no survival benefit, nor has adjuvant chemotherapy been helpful.¹⁸

Radiation Therapy. Radiation therapy has been the usual treatment for inoperable regional non-small cell lung cancer,¹⁸ and it is considered an alternative for patients who can not undergo or who decline surgery. The median survival after primary radiotherapy is less than one year, but about 6% of patients are alive and well five years after radiation therapy alone. One study of combining vinblastine and cisplatin chemotherapy with radiation therapy showed survival rates of 55% after one year, 26% after two years, and 23% after three years (after radiation therapy alone, the figures were 40%, 13%, and 11%, respectively).¹⁸ Of course, survival after radiation cannot be compared to surgery because patients selected for radiation alone usually have less favorable prognoses.¹⁹

Chemotherapy. In contrast to small cell lung cancer, chemotherapy in advanced (stage IV) non-small cell lung cancer is of marginal benefit.²² There may be a modest survival benefit from platinum-based chemotherapy compared to best supportive care or other chemotherapy regimens. Younger patients with high performance status may be considered for treatment, preferably on protocols attempting to identify new agents or treatment combinations.

Conclusions

1. Although lung cancer rates may have peaked among men in North Carolina, they continue to rise among women.
2. Physicians should ask all patients whether they smoke, should give every smoker a strong message to quit, and should then provide assistance in quitting. North Carolina has been selected as a site for the American Stop Smoking Intervention Trial (ASSIST) so that, during the next decade, there will be concerted efforts to prevent or stop smoking by North Carolinians.
3. Screening smokers for lung cancer is not appropriate, but may be indicated in some very high-risk populations.
4. Prevention of lung cancer is the best approach since treatment is usually too late and too ineffective.

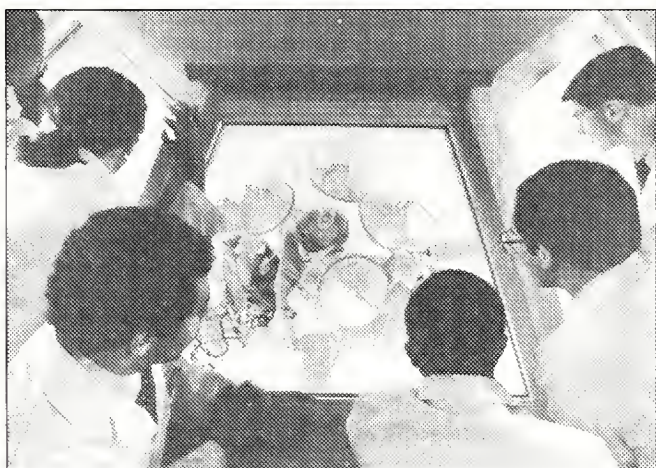
Authors' note: Call 1-800/4-CANCER for information about how to counsel patients about quitting or for a referral number for patients. For details on data resources for Figures 2 and 3, contact Dale Herman, M.S.P.H., at 919-733-4728.

References

- 1 U.S. Department of Health and Human Services. Strategies to control tobacco use in the United States: a blueprint for public health action in the 1990s. U.S. Department of Health and Human Services, Public Health Service, National Institutes of Health, National Cancer Institute, NIH Pub. No. 92-3316, October 1991.
- 2 Escobedo LG, Anda RF, Smith PF, et al. Sociodemographic/demographic characteristics of cigarette smoking initiation in the United States. Implications for smoking prevention policy. JAMA 1990; 264:1550-1555.
- 3 Glynn TJ, Manley MW. Physicians, cancer control and the treatment of nicotine dependence: defining success. Health Ed Res 1989;4:479.
- 4 Cummings SR, Rubin SM, Oster G. The cost-effectiveness of counseling smokers to quit. JAMA 1989;261:75-79.
- 5 Koitke TE, Battista RN, DeFries GH, Brekke ML. Attributes of successful smoking cessation interventions in medical practice. JAMA 1988;259:2883-2889.
- 6 Orleans CT. Smoking cessation in primary care settings. NJ Med 1988;85:116-117.
- 7 Fisher EB Jr, Rost K. Smoking cessation:

- a practical guide for the physician. *Clin Chest Med* 1986;7:551-565.
- 8 Lichtenstein E, Hollis J. Patient referral to a smoking cessation program: who follows through? *J Fam Pract* 1992; 34:739-744.
 - 9 Fiore MC, Jorenby DE, Baker TB, Kenford SL. Tobacco dependence and the nicotine patch: clinical guides for effective use. *JAMA* 1991;268:2687-2694.
 - 10 Cohen SJ, Christen AG, Katz BP, et al. Counseling medical and dental patients about cigarette smoking: the impact of nicotine gum and chart reminders. *Am J Public Health* 1987;77:313-316.
 - 11 Wilson DMC, Taylor DW, Gilbert JR, et al. A randomized trial of a family physician intervention for smoking cessation. *JAMA* 1988 260:1570-1574.
 - 12 Glynn TJ. Relative effectiveness of physician-initiated smoking cessation programs. *The Cancer Bulletin* 1988;40:359.
 - 13 Lichtenstein E, Glasgow RE. Smoking cessation: what have we learned over the past decade? *J Cons Clin Psych* 1992;60:518-527.
 - 14 Rimer BK, Orleans CT. Older smokers. In: *Nicotine Addiction: Principles of Management*. Orleans CT, J Slade, eds. New York: Oxford University Press (in press).
 - 15 U.S. Department of Health and Human Services. The health consequences of smoking: nicotine addiction. A report of the Surgeon General 1988. Washington, D.C.: U.S. Department of Health and Human Services, Public Health Service, Centers for Disease Control, Center for Health Promotion and Education, Office on Smoking and Health, DHHS Pub No. (CDC) 88-8406, 1988.
 - 16 Fortmann S, Killen J, Telch M, Newman B. Minimal contact treatment for smoking cessation. A placebo controlled trial of nicotine polacrilex and self-directed relapse prevention: initial results of the Stanford Stop Smoking Project. *JAMA* 1988;260:1575-1580.
 - 17 Tonnesen P, Fryd V, Hansen M, et al. Effect of nicotine chewing gum in combination with group counseling on the cessation of smoking. *N Engl J Med* 1988;318:15-18.
 - 18 Bunn PA. Lung cancer current understanding of the biology, diagnosis, staging and treatment. Princeton, NJ: Bristol Myers Squibb Company, 1992;34-38,48,52.
 - 19 DeVita VT, Hellman S, Rosenberg SA. Cancer principles and practice of oncology. JB Lippincott Co. 1989, pp 613,615,591.
 - 20 O'Rourke MA, Feussner JR, Ferge P, Laszlo J. Age trends of lung cancer at diagnosis. *JAMA* 1987;258:921-926.
 - 21 Crawford J. Issues on chemotherapy: a monograph series, small cell lung cancer. New York, NY: Triclinica Communication Inc., 1992, pp 5-21.
 - 22 Ihde DC. Chemotherapy of lung cancer in review. *N Engl J Med* 1992;327:1434-1441.

AN ARMY SCHOLARSHIP COULD HELP YOU THROUGH MEDICAL SCHOOL



The U.S. Army Health Professions Scholarship Program offers a unique opportunity for financial support to medical or osteopathy students. Financial support includes tuition, books, and other expenses required in a particular course.

For information concerning eligibility, pay, service obligation and application procedure, contact the Army Medical Department Personnel Counselor: Call Collect 804-771-2354

ARMY MEDICINE. BE ALL YOU CAN BE.®

Our Roots Run Deep.



North Carolina physicians created Medical Mutual to protect the State's health care providers. For 17 years, we've kept the professional liability market open and stable – and we've built a strong company to weather the inevitable storms ahead.

Medical Mutual. We'll be there when you need us.



Medical Mutual Insurance Company of North Carolina

919.872.7117 800.662.7917

Offices in Raleigh, Greenville and Charlotte.

Screening for Cervical Cancer

Pap Smears Can Save Lives

Jeffrey G. Wong, M.D., and John R. Feussner, M.D.

"Susan is a 32-year-old single woman who rarely visits a doctor and who has come in for a full check-up. She feels well and has a relatively negative past medical history (tonsillectomy as a child; extraction of wisdom teeth at age 14; elective abortion at age 18). She smokes one pack of cigarettes a day and rarely drinks alcohol. She is a slender, healthy appearing woman who declines a pelvic exam and PAP smear stating that her periods are always normal and that she has not had sexual relations for more than four years. Her last Pap smear, four years ago, was 'normal.'"

In the first article in this series (NC Med J 1993;54:218-21) we addressed general considerations for deciding whether and how to screen asymptomatic patients for disease. Here we address specific questions regarding Pap smear screening for cervical cancer.

What should we recommend to Susan about a Pap smear? Using the six guidelines provided in our first article, we will formulate a recommendation for Susan, reviewing each guideline individually in order to arrive at a reasonable therapeutic plan.

Target Disease Considerations

1. Is the disease common or serious enough to warrant screening?

Yes. Cervical cancer is an important cause of morbidity and mortality in women. In the U.S. in 1991, 13,000 cases of invasive

cervical cancer and 45,000 cases of carcinoma-in-situ (CIS) were diagnosed and approximately 7,000 women died.¹ Cervical cancer can strike young women (it is estimated that an average of 23 years of life are lost per woman dying of this disease).²

2. Is there a pre-symptomatic phase in the natural history of the disease during which time a test can detect it?

Yes. Screening for cervical cancer is based on the premise that the detection of cervical dysplasia or CIS will prevent the subsequent development of invasive cervical cancer. The transitional period of time from dysplasia to invasion ranges from as short as one year to as long as 20 years, based on epidemiological data.^{3,4}

Neither cervical dysplasia nor CIS are symptomatic in their early stages. The incidence of invasive cervical cancer in women under age 25 is about 1-3/100,000, but the rate steadily increases in the older age groups.⁵ Waiting until the disease is clinically apparent means waiting for more invasive disease and poorer outcomes. More than 90% of persons diag-

nosed with localized cervical cancer survive for five years or longer, but the survival rate is considerably lower (less than 40%) for persons with advanced disease.⁶

3. Are there effective treatments for the disease available to use after early detection?

Yes. Treating the pre-invasive lesions of dysplasia or CIS with conization or cryotherapy is highly effective in preventing later development of invasive cancer.⁷ Only women who develop invasive cancer are at risk of dying from the disease. Furthermore, early treatment can avoid extensive surgical and radiation therapy (with their associated morbidity—bowel obstruction, infertility, and chronic pelvic and abdominal pain), but invasive disease may need such therapy.

Screening Test Considerations

1. Is there a screening test with acceptable sensitivity and specificity available

From the Division of General Internal Medicine, Box 3375, Duke University Medical Center, Durham 27710.

to detect the targeted disease?

Probably yes. Papanicolaou, in 1941, described the technique of sampling vaginal pool cells (Pap smears) to screen for cervical cancer, and the technique has been in use since that time. The early detection of cervical lesions through routine Pap testing and the treatment of cancer precursor lesions can lower mortality from cervical cancer.⁶ However, the Pap smear is only the first step toward the diagnosis of cervical cancer and alone is rarely conclusive; colposcopy and biopsy are usually necessary to make a final diagnosis.

We do not have precise estimates for the sensitivity and specificity of the Pap smear. Since most patients with negative Pap smears do not undergo subsequent evaluation, data on sensitivity are difficult to find. Nonetheless, a sensitivity of 55%-80% (false negative rate of 20%-45%) has been estimated from a number of studies.⁶ Obviously, false negative results are important because a missed carcinoma-in-situ may become an invasive carcinoma during the interval between screenings. Specificity is likewise difficult to ascertain but has been estimated to be greater than 90% (false positive rate of less than 10%).^{3,8}

Several procedural problems with the Pap smear itself contribute to the lack of precise measures of efficacy. These problems include variability in the quality of the Pap smear obtained by the practitioner (sampling problems), uncertainty of the pathologist in interpreting the slide (interpretation problems), and difficulties in accurately communicating the pathological interpretation (communication problems). The last of these problems results directly from the lack of a uniform system of Pap smear reporting. At present, at least four different reporting systems are in use, but there is some movement toward universal adoption of the Bethesda System of classification⁹ (Table 1).

An additional problem surrounding the question of Pap smear efficacy is that its use has become the "standard of care." Performing randomized prospective trials to prove its efficacy would be considered unethical. Therefore, the conclusion

that Pap smear screening saves lives is based completely on data collected from descriptive epidemiological cohort and case-control observational studies. An example of these data comes from work by Day¹⁰ who summarized time trends for cervical cancer mortality in five Nordic countries. He compared mortality rates in the 1960s (when mass Pap smear screening programs began) with those in 1978 and 1982. Mortality in women age 40 to 49 was reduced by 63%-77% in Iceland, Finland, and Sweden, countries where 80% of the targeted population was screened. Similar findings from other epidemiological studies have led to the consensus that Pap smear screening is effective in reducing mortality from invasive cervical carcinoma.¹¹

2. Can an appropriate population of high-risk patients be identified to undergo screening?

Yes. A number of risk factors are associated with higher incidence rates of cervical dysplasia in women. Women who are sexually active before age 20,³ who have more than one sexual partner in their lifetime,¹² who have infection with human papilloma virus (HPV), especially serotype 16/18,¹³ and women who smoke cigarettes¹⁴ have higher rates of cervical dysplasia. In addition, risk is increased for women whose male partners have had multiple sexual partners and in women whose partners have HPV infection. On the other hand, several factors including herpes simplex virus (HSV) infection, family history of cervical cancer, type of contraception used (if any), diet, and socioeconomic status do not independently predict higher risk.

The incidence of abnormal Pap smears in women under 35 years old is increasing.¹⁵ It is not clear whether this is due to an actual increase in the preva-

Table 1. The Bethesda System for Pap smear classification

Specimen adequacy:

Satisfactory for evaluation

Satisfactory but evaluation limited by...(specify reason)

Unsatisfactory for evaluation

Descriptive diagnoses:

Within normal limits

Benign cellular changes

Infective changes (specific organism identified)

Reactive changes (inflammation, atrophy, radiation, IUD-associated)

Epithelial cell abnormalities

Atypical squamous cells of undetermined significance

Low-grade intraepithelial lesion

(encompasses mild dysplasia/CIN 1* from other classification systems)

High-grade intraepithelial lesion

(encompasses moderate and severe dysplasia/CIS/CIN 2* and CIN 3* from other classification systems)

Invasive squamous cell carcinoma

*CIN—cervical intraepithelial neoplasia;

CIS—carcinoma-in-situ

Table 2. Recommendations for cervical cancer screening

Recommendations by the American Cancer Society:

- Annual Pap smears for all sexually active women older than 18 years;
- Frequency may be less than every year at the discretion of the physician and after three consecutive normal yearly tests.

Recommendations by the U.S. Preventive Services Task Force:

- Pap smears every one to three years, at the discretion of the physician, in all sexually active women;
- Pap smears may be discontinued at age 65 if previous smears have been normal.

lence of disease (due to changes in sexual mores, to increased HPV exposure, etc.) or due to a detection bias produced by an increased number of Pap smears performed through early detection programs.¹⁶

Providing Pap smears to women who are not currently being screened and especially to those at highest risk for cervical dysplasia will improve the effectiveness of screening programs. Some studies suggest, however, that groups of women at greatest risk for cervical cancer are the ones *least* likely (due to ignorance, problems with health care access, financial constraints, or a combination of all) to undergo screening. Black women, the poor, the uninsured, the elderly, and persons living in rural areas are less likely to have adequate Pap testing.

There are special populations of women who do *not* require screening. Women who have never engaged in sexual intercourse are not at risk for cervical cancer and do not require screening.⁵ Pap smears are of no known benefit to women who have had a total hysterectomy, and we do not recommend Pap smears for these women.

3. Do the benefits of screening justify the costs of the screening strategy?

Probably yes. The direct costs of the Pap smear are relatively small, but the costs of evaluating positive tests and the anxiety created by false positive results must be taken into account. Also, the fixed costs of screening depend on the interval of time between each screening examination (more frequent screening costs more).

The Working Group on Evaluation of Cervical Cancer Screening Programmes of the International Agency for Research on Cancer used mathematical models to estimate cost.¹⁷ They found that screening women aged 20-64 every three years would reduce the cumulative incidence of cervical cancer by 91%, would provide a lifetime total of 15 Pap smears to each woman, and would detect 96 abnormalities/100,000 Pap smears taken. Annual screening would reduce the incidence by 93% but would require 45 Pap smears during a woman's lifetime and would detect only 33 abnormalities/100,000 tests. Making the screening interval longer than three years would significantly worsen the rate of reduction of cervical cancer.

Recommendations

There is consensus that Pap smears are necessary. The only real controversy lies in the frequency with which they should be made. Table 2 lists the recommendations of the American Cancer Society and the U.S. Preventive Services Task Force.

Returning to our vignette, it is clear that Susan needs a Pap smear now. Not only is she overdue by the most conservative of recommendations, she also is in a relatively high-risk group, being a cigarette smoker and having had intercourse at an early age. Her present status of sexual inactivity is no reason for skipping the Pap smear. □

Next in our series on screening for disease (to be published in the September *Journal*), we will discuss the following case:

The mother of one of Susan's friends, Mary Jones, is presently receiving treatment for ovarian cancer. By the time Ms. Jones' physician discovered her cancer, it was widely spread and she is not expected to recover from her disease. After having discussed the role of the Pap smear in cervical cancer screening, Susan asks about whether she needs to be screened for ovarian cancer. None of her relatives has ever had ovarian cancer, but she is concerned nonetheless having watched how Ms. Jones has suffered.

What should we recommend to Susan about screening for ovarian cancer?

References

- 1 Boring CC, Squires TS, Tong T. Cancer statistics: 1991. *CA* 1991;41:19-36.
- 2 Horm JW, Sondik EJ. Person-years of life lost due to cancer in the United States, 1970 and 1984. *Am J Pub Health* 1989; 79:1490-1493.
- 3 Reid, R, Campion MJ. HPV-associated lesions of the cervix: biology and colposcopic features. *Clin Obstet Gynecol* 1989;32:157-179.

- 4 Wright VC, Roipelle MA. Age at time of intercourse versus chronologic age as a basis for PAP smear screening. *Can Med Assoc J* 1982;127:127-131.
- 5 Boyes, DA, Morrison B, Knox EG, et al. A cohort study of cervical cancer screening in British Columbia. *Clin Invest Med* 1982;5:1-29.
- 6 U.S. Preventive Services Task Force. Screening for cervical cancer. In: Fisher M, ed. *Guide to Clinical Preventive Services*. Baltimore: Williams and Wilkins; 1989:57-62.
- 7 Perez CA, Knapp RC, DiSaia PJ, Young RC. Gynecologic tumors. In: DeVita VT Jr, Hillman S, Rosenberg SA, eds. *Cancer Principles and Practice of Oncology*, ed 2. Philadelphia: JB Lippincott, 1985:1013.
- 8 Tawa K, Forsythe A, Cove, JK et al. A comparison of the Papanicolaou smear and the cervigram: sensitivity, specificity and cost analysis. *Obstet Gynecol* 1988;71:229-235.
- 9 National Cancer Institute Workshop. The 1988 Bethesda System for reporting cervical/vaginal cytological diagnoses. *JAMA* 1989;262:931-934.
- 10 Day NE. Screening for cancer of the cervix. *J Epidemiol Community Health* 1989;43:103-106.
- 11 Richert-Boe KE, Humphrey LL. Screening for cancers of the cervix and breast. *Arch Intern Med* 1992;152:2405-2411.
- 12 Oriel JD. Sex and cervical cancer. *Genitourin Med* 1988;64:81-89.
- 13 Spitzer M, Krumholz BA, Seltzer VL. The multicentric nature of disease related to human papillomavirus infection of the female lower genital tract. *Obstet Gynecol* 1989;73:303-307.
- 14 Slattery ML, Robison LM, Schuman KL, et al. Cigarette smoking and exposure to passive smoke are risk factors for cervical cancer. *JAMA* 1989;261:1593-1598.
- 15 Larsen PM, Vetter M, Hansen K, Gey SJ. Future trends in cervical cancer. *Cancer Lett* 1988;41:123-127.
- 16 Yu S, Miller AB, Sherman GJ. Optimising the age, number of tests, and test interval for cervical screening in Canada. *J Epidemiol Community Health* 1982;36:1-10.
- 17 International Agency for Research on Cancer Working Group on Evaluation of Cervical Cancer Screening Programmes. Screening for squamous cervical cancer: duration of low risk after negative results of cervical cytology and its implication for screening policies. *Br Med J* 1986; 292:127-128.

CSS's \$100,000 Rebate Offer!

CSS, Inc., a N.C. developer of software for the medical profession exclusively for the last ten years, makes this offer—Be the next medical practice in your county to purchase or lease the MediScan® II office management computer system and receive a rebate check for \$1,000. Buy new equipment. Take a needed vacation. The \$1,000 is yours to do as you please.

All 100 counties in North Carolina are eligible for a \$1,000 rebate. This offer ends December 31, 1993. For details, call Deeb Demetry at 800-227-8689.

CSS, Inc.
311-C Pomona Drive
Greensboro, NC 27407



"I'm practicing medicine the way I think it should be practiced, sans the paperwork and administrative overload."

Owen Brodie, MD, joined CompHealth's locum tenens medical staff in 1989, after 21 years in private practice. Since

then he's worked in temporary assignments in state facilities, filled in for attending physicians, covered for private practitioners across the country.

A pilot. A historian. A board-certified psychiatrist. Southern to a fault. Owen Brodie knows...

It's a great way to practice medicine

CompHealth

L O C U M T E N E N S

1-800-455-5050

Salt Lake City ■ Atlanta ■ Grand Rapids, Mich.

Durham, City of Medicine, USA

Part 3: The City of Medicine Awards Program and the Future

James E. Davis, M.D.

Editor's note: The following is a continuation of Dr. Davis's series on Durham's City of Medicine Program. Part 1 appeared in the May issue; Part 2 was published in June.

As early as 1984, the City of Medicine Executive Committee discussed ways to extend and solidify national recognition of the program. We explored establishing a regional or, preferably, a national award that would recognize individuals or organizations for extraordinary service in the health care field. Our studies showed that such an award could cost \$50,000 to \$100,000 annually, as well as requiring a vast amount of time and work. We discussed whether we could combine our award with the Chamber of Commerce's Annual Civic Award Banquet, but received little encouragement. The Executive Committee concluded that we should postpone such a program.

In 1987, H.C. Cranford, Jr., chairman of the Public Relations Committee, conceived a plan that promised to make a national awards program possible. He proposed a City of Medicine Award consisting of a \$5,000 honorarium, a personalized Tiffany sculpture (handcrafted Baccarat crystal bearing the staff of Aesculapius and the City of Medicine logo, Figure 1, at right), and a citation describing the honoree's achievements in medicine. A panel of distinguished judges would select the recipients from throughout the nation.

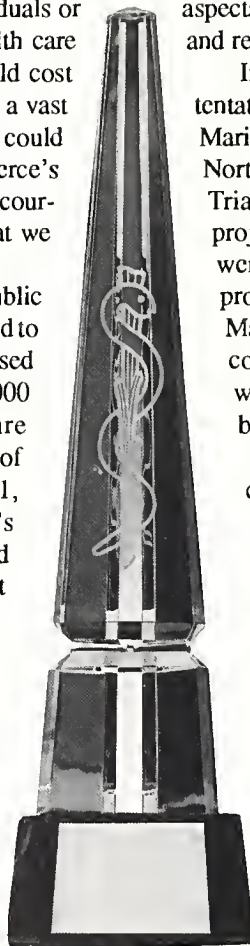
Cranford envisioned an annual dinner that would recognize individuals and organizations who had made outstanding contributions to medicine in the public interest—contributions that encouraged progress in the medical sciences and that attracted outstanding young people into medicine, medical education, and research. He suggested that we seek support from local industries, businesses, hospitals, and health facilities because he felt that the program would benefit industry and business

and literally every individual in our community. He foresaw that our efforts would focus local, state, and national attention on Durham as a center of excellence in the three basic aspects of medicine—delivery of care, medical education, and research.

In August 1987, with these thoughts, dreams, and tentative plans in mind, Cranford and I visited Dr. Ernest Mario, then chief executive officer of Glaxo, Inc., whose North American headquarters are located in Research Triangle Park. We asked Dr. Mario to evaluate our projected plans, provide his opinion about whether we were likely to gain community-wide support for the project, and whether Glaxo might become involved. Dr. Mario caught our enthusiasm. He predicted that the community would support the project and that Glaxo would consider a major role in the undertaking, possibly the principal role for the first year.

A few weeks later, his encouragement became our euphoria. Dr. Mario called to say that, on the recommendation of his internal awards committee, Glaxo would be the principal sponsor for the first awards dinner, and would provide \$50,000 to underwrite the event. Moreover, to help establish a permanent program, Glaxo would give an additional \$10,000 per year for the next five years as "seed money" to assure the continuation of this community effort. The City of Medicine Awards Program was a dream with life and vigor!

Cranford organized the committee that determined the date, location, and format for the awards, as well as ticket sales, publicity, and other details for the dinner. With help from Dr. William G. Anlyan and J. Alexander McMahon,



From 2609 N. Duke St., Suite 403, Durham 27704.



Figure 2 (left): 1988 awards recipients (from left)—Herbert W. Boyer, Ph.D., Eppie Lederer (Ann Landers), Stanley M. Cohen, M.D., and Eugene A. Stead, Jr., M.D. **Figure 3 (right):** 1989 awards recipients (from left)—Willem J. Kolff, M.D., Ph.D., Thomas E. Starzl, M.D., Ph.D., and C. Everett Koop, M.D., D.Sc.



I formed a national awards committee (Table 1, below) that solicited nominations from the deans of every U.S. medical school, from the chief executive officers of major pharmaceutical companies and medical research organizations, and from the leaders of major medical and hospital associations throughout the country. From the beginning we planned special efforts to make this a total Durham community effort, bringing "town and gown" closer together. To further this goal, the site of the awards is rotated on alternate years between a downtown and a Duke University location.

The First Awards Dinner

After a busy summer and a frenetic fall, the first presentation dinner was held on the East Duke campus October 26, 1988. Following a reception in the art museum, the capacity crowd of 200 moved to the East Duke dining room for the presentations.

Table 1. Awards committee members

William G. Anlyan, M.D. , chancellor emeritus, Duke University
James E. Davis, M.D. , chair, City of Medicine Program
David M. Kipnis, M.D. , professor, Department of Internal Medicine, Washington University Medical Center, St. Louis, Mo.
Julius R. Krevans, M.D. , chancellor, University of California, San Francisco
J. Alexander McMahon , executive-in-residence, Fuqua School of Business, Duke University
Daniel C. Tosteson, M.D. , dean, Faculty of Medicine, Harvard Medical School, Boston, Mass.
James B. Wyngaarden, M.D. , foreign secretary, National Academy of Sciences and Institute of Medicine, Washington, D.C.

During the ceremony the City of Medicine Award was called "the Oscar and Emmy of Medicine soon to be recognized worldwide," and the mayor of Durham remarked that the area's health care system is "the strong engine that drives the economy that is Durham." The first recipients of the Award were Dr. Eugene A. Stead, Jr., professor of medicine emeritus, Duke University; Dr. Stanley M. Cohen, professor of genetics and medicine, Stanford University; Dr. Herbert W. Boyer, professor of biochemistry and biophysics, University of California, San Francisco; and Eppie Lederer, internationally syndicated columnist, better known as Ann Landers (Figure 2, above).

Dr. Stead was recognized for his notable service as practitioner, researcher, and educator during a professional career that had spanned five decades. He is nationally recognized for his heart research and, after 20 years as chairman of the Department of Medicine at Duke, hundreds of physicians look to him as "The Professor," the individual who most positively affected their medical careers. While at Duke, Dr. Stead also founded the physician assistant program, a health profession now known nationwide.

Drs. Cohen and Boyer were honored together for developing the technology of recombinant DNA, a discovery that has led to the current revolution in biology and in genetic research. Their work has led to medically useful synthetic products such as insulin, human growth hormone, clotting factors, and vaccines that previously had to be derived from natural sources.

The selection of Ann Landers evoked some inquiries about her medical qualifications. We pointed out that she is the most widely read and probably the most effective lay educator for medicine in the world. Many regard her as the most respected human relations columnist in the history of journalism. Her writings, found in 1,200 newspapers, reach 90 million avid readers around the world every day. She was honored for her extraordinary understanding of the human condition, her ability to translate expert medical answers into clear, cogent, and helpful prose, and her ability to instill hope between the lines of her columns. At the award proceedings, Landers called the

elegant Tiffany sculpture, "An award of great beauty...thank goodness they didn't give us another plaque."

The first City of Medicine dinner clarified the changes taking place in Durham. A *Durham Sun* headline proclaimed, "Medical Awards Put Durham in the National Spotlight." Subsequently, our sponsors and volunteers were pleased with this first effort and willing to continue as members of the team. Planning for the second Awards Dinner began immediately.

The Second Awards Dinner

There was a marked increase in the number of responses to our second invitation for Award nominations. It was evident from this expanded interest, and from comments from friends, that both academic medicine and the pharmaceutical world were now aware of the annual event and wanted their best people to be considered for it.

In 1989, the Awards Committee chose former U.S. Surgeon General C. Everett Koop, the nation's leading and most effective enemy of tobacco use, as one of the three recipients. Although some negative reaction to this choice was predictable, the committee did not waver in its choice of Dr. Koop. Other recipients were Dr. Willem J. Kolff of the University of Utah and Dr. Thomas E. Starzl of the University of Pittsburgh (Figure 3, previous page). Dr. Kolff, Dutch inventor of the artificial

kidney and the Jarvik heart, is known as the "father of artificial organs." Dr. Starzl performed the world's first liver transplant and has trained many transplant surgeons. He directs the busiest transplant program in the world at the University of Pittsburgh.

The awards were made before a capacity crowd of 400 Durham-area physicians, scientists, business and professional leaders, local officials, and other guests at the Omni Durham Hotel and Convention Center. As expected, Dr. Koop minced no words. He blasted the tobacco industry for exporting "death, disease, and disability," and added, "The tobacco industry in this country is not a growth industry." Asked if he saw irony in accepting an award for his contribution to medical science in a city that arose as a center of the tobacco industry, he replied, "It's delightful. I don't know if it's ironic." He added that when he visits a tobacco-growing state, "people will tug at my sleeve and say they are on my side. There is a growing sense of the immorality of the problem." Media reports on Dr. Koop's award did report on its irony. The *Raleigh News and Observer*, in a feature story on his visit, saw the recognition of Dr. Koop in Durham as "symbolic of North Carolina today...the story of a changing state." However, the paper noted that regardless of the state's social and economic transformation, no major North Carolina politician "is going to join Dr. Koop in decrying U.S. cigarette sales abroad as an immoral exporting of 'death, disease, and disability.'"

Dr. Kolff, commenting on a patient who at that time had lived for 22 months with an artificial heart, said, "The real future for the artificial heart will be for the approximately 33,000 patients per year for whom you cannot find a donor and who are going to die unless they get an artificial heart." Dr. Starzl, reflecting on the need for new drugs to prevent the rejection of transplanted organs, said, "As more effective drugs are developed to prevent rejection of organs after transplantation, they may also help to prevent the auto-immune diseases that afflict organs and necessitate the need for transplantation."

The Third Awards Dinner

The third awards ceremony, held at the Washington Duke Inn and Golf Club on the Duke campus in October 1990, proved to be an example of "the best of times, and the worst of times," and a reassuring example of community self-reliance. I say the best of times because the Awards Committee chose Durham's two Nobel laureates, Drs. George H. Hitchings, Jr., and Gertrude B. Elion, D.Sc. (Figure 4, at left), along with Dr. David H. Hubel of the Harvard Medical School, and Dr. Lewis Thomas of the Cornell University Medical Center. Dr. Hitchings and Dr. Elion had worked to develop new drug therapies, including treatments for malaria, leukemia, gout, organ transplantation, and bacterial infections. Their studies continue to contribute to the development of anti-viral drugs for the treatment of herpes infections and AIDS.

Dr. Hubel has investigated the cell connections related to vision. His studies demonstrate that these connections are present at birth, but can be altered. His studies have led to improved treatment of children suffering from double vision. For his work he and his associate, Dr. Torsten Wiesel, won the Nobel Prize in Medicine in 1981.

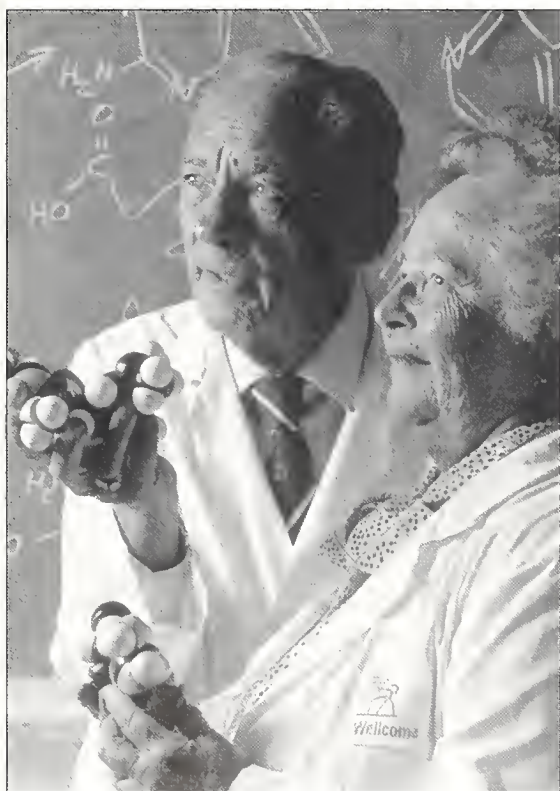


Figure 4: Two of the 1990 awards recipients—George H. Hitchings, Jr., Ph.D., D.Sc. (left), and Gertrude B. Elion, D.Sc. (right).

Dr. Thomas's scientific reputation is based on his original concept that one of the major functions of the immune system is to patrol the body for malignant cells and to destroy them. He is probably even better known as one of the nation's most effective physician-writers, interpreting medicine for the laity. He is widely recognized for his award-winning and best-selling books, *The Lives of a Cell*, *The Medusa and the Snail*, and *Late Night Thoughts on Listening to Mahler's Ninth Symphony*.

After receiving extensive and widespread acclaim for its truly outstanding selections, the Awards Committee suddenly suffered "the worst of times." While in Oxford, England, on sabbatical, Dr. Hubel had a heart attack the weekend before the scheduled awards ceremony, and his physician forbade transatlantic travel. Two days later Dr. Thomas was admitted to Memorial Hospital in New York with an acute exacerbation of a chronic illness. He remained bedridden for many days. For the first time ever, we were faced with the problem that not just one but two recipients could not be present to receive their awards. This called for ingenuity and self-reliance. We turned inward—and Durham responded magnificently. Dr. James B. Wyngaarden, former chairman of the Department of Medicine at Duke and currently foreign secretary of the National Academy of Science and Medicine, accepted the award for his close friend, Dr. Lewis Thomas. His acceptance speech was memorable as he read passages from several of Dr. Thomas's most popular works. Dr. Daniel C. Tosteson, for many years a Duke Medical School faculty member and currently Dr. Hubel's dean at the Harvard Medical School, accepted for Dr. Hubel. He conveyed a sense of Dr. Hubel's presence by recounting his many recent conversations with the recipient.

In 1990 we added another feature to the awards ceremony. The recipients were asked to attend a breakfast for health care workers on the day following the award presentations. Accordingly, Drs. Hitchings and Elion met with 240 individuals who had been selected by their employers, the various health care facilities of Durham and the Research Triangle Park, to attend this special occasion at the Washington Duke Inn. Dr. Elion paid special tribute to "all young people who work with us," many of whom were in the audience. "Research is a team effort," she said. "Nowadays, I don't believe it is possible to accomplish medicinal pharmaceutical research except with a team. The honor done us is an honor to the young people."

Dr. Hitchings added with great feeling, "The real reward... is not the prizes... but the lives that have been saved and improved." No audience could better understand or better share his sense of true accomplishment. The "Health Workers' Breakfast," sponsored by Glaxo, became a regular feature of the City of Medicine Awards event.

The Fourth Awards Dinner

Our fourth dinner, held October 23, 1991, marked the completion of the first decade of the City of Medicine Program. During this period we had seen 9,434 new health-related jobs created



Figure 5: 1991 awards recipients (from left)—Philip Leder, M.D., Alfred G. Gilman, M.D., Ph.D., Robert Lefkowitz, M.D., and Carlos Canseco, M.D.

and a total of 31,466 people working in health care in the city and county of Durham. During the same period of time, the value of health-related research and development had increased 52%, from \$400 million a year to \$607 million. We invited an audience of Durhamites to the Omni Durham Hotel to help honor our 1991 award recipients, all of whom were associated with the Howard Hughes Medical Institute: Dr. Robert J. Lefkowitz, Duke University Medical Center; Dr. Alfred G. Gilman, University of Texas, Southwestern Medical Center, Dallas; and Dr. Philip Leder, Harvard Medical School, Boston (Figure 5, above).

Dr. Lefkowitz was honored for elucidating the nature of cell membrane receptors. He has demonstrated how the molecular structure of these receptors determines their function and thereby controls almost all cellular functions. His work has direct implications to cardiovascular diseases, pulmonary diseases, neurological diseases, cancer, and immunology.

Dr. Gilman explained his work as similar to that of Dr. Lefkowitz, except that he concentrates on intracellular mechanisms that govern responses to drugs. He has shown that chemical signaling within cells is possibly even more sophisticated and complex than human interactions with the spoken word. Dr. Gilman has given a firm molecular basis to our understanding of basic mechanisms in endocrinology, neurobiology, and cancer biology.

Dr. Leder was honored for his innovative research in genetics. He has contributed to the clarification of the genetic code, the development of recombinant DNA technology, the analysis of the structure of mammalian genes, and understanding of the mechanism of oncogene action in human cancer.

In selecting awardees, we charge our committee to choose individuals or organizations who perform extraordinary service in medicine "in the public interest." In 1991, the committee chose for the first time to honor an organization, Rotary International, for its successful Polio Plus campaign to immunize all children by the year 2,000. The award was accepted by Dr.

Carlos Canseco of Monterrey, Mexico, past president of Rotary International. The Polio Plus campaign is a \$230 million international effort financed by voluntary contributions from more than one million Rotarians worldwide. Some 278 million children in 97 countries have already been immunized under the program, and an estimated 544 million children will receive free oral polio vaccine by the end of the century.

In 1991, Glaxo, Inc., developed an advertisement titled, "In Every Medical Scientist You've Got a Friend for Life," which contained pictures and a short biography of each recipient, mentioned that the awards ceremony was held in Durham, City of Medicine, U.S.A., and encouraged young people to consider a life and career in medical research. Glaxo ran the ad in *The New York Times*, *The Washington Post*, *The Wall Street Journal*, and in the hometown papers of each recipient.

The Fifth Awards Dinner

In 1992 the City of Medicine Awards became international. Although we had recognized Rotary International, all of our previous recipients had been U.S. residents. In 1992, we honored Dr. Bengt Samuelsson, president of the Karolinska Institute in Stockholm, Sweden. The message was that henceforth City of Medicine nominees would have to compete globally for this prestigious honor. Named with Dr. Samuelsson were Dr. Bernard Fisher of the University of Pittsburgh School of Medicine and Dr. Yuet Wai Kan of the University of California, San Francisco, School of Medicine (Figure 6, below).

Dr. Samuelsson, who won the Nobel Prize in 1982, was recognized for his work, which has dramatically changed the treatment of strokes, heart attacks, asthma, arthritis, reproductive disorders, and many other illnesses. His study of arachidonic acid metabolism led to the discovery of prostaglandins, biological compounds formed from arachidonic acid and impli-

cated in many human illnesses. One of the many practical outgrowths of this research is the use of aspirin to prevent and treat cardiovascular disease.

Dr. Fisher is acknowledged as the first investigator to recognize that cancer does not spread in an orderly fashion throughout the body and that it represents a systemic problem. Much subsequent research on breast and stomach cancer has been based on his discoveries. He led the medical profession to accept that local surgery, coupled with extensive systemic treatment, could be an alternative to radical cancer surgery.

Dr. Kan's remarkable discoveries form a cornerstone of modern genetics and have provided fundamental understanding of inherited blood diseases. He demonstrated that gene mutation could cause human disease, and he was the first to use DNA analysis for the diagnosis of a human disease. The field of genetics has profited from Dr. Kan's development of a now-standard technique to screen families for inherited illnesses, even when the disease genes have not been identified or precisely located. As a practical result of his studies, he developed methods for the prenatal diagnosis of two common blood diseases, thalassemia and sickle cell anemia. Dr. Kan, and the legion of physicians he trained, have saved lives and improved prenatal monitoring and care worldwide.

The awards ceremony at the Washington Duke Inn October 22, 1992, was enlivened by biographical videos, submitted by each of the recipients, which were used to introduce them. The next morning, our three recipients graciously led a discussion at the Health Workers' Breakfast. It was heartening to see more than 200 health care workers from Durham's hospitals, laboratories, and educational and training centers, engaged in stimulating dialogue with three world-class scientists. Our guests had come to Durham to be recognized and honored, but they used the occasion to educate, stimulate, and inspire our scientific-minded community to serve humanity even better.

National and local newspapers announced the 1992 awards. Glaxo ran an advertisement that related the ceremony to Columbus's discoveries by proclaiming: "Medical Scientists Discover New Worlds Every Day." Along with a brief explanation of the awards and a biography of each recipient, the ad gave reasons why Durham is the City of Medicine, U.S.A. It gave a strong appeal to medical and pharmaceutical researchers and concluded, "Finding therapies for our toughest illnesses is as daunting a challenge as Columbus's search for the New World."

The Future

What are our plans for the City of Medicine Program? We will continue our mobile health fairs, the Ambassador program, our many types of educational programs, and the annual awards ceremonies. In addition, we see many opportunities for community-oriented projects that will better serve the unmet health needs of the people of Durham. We believe that our education and screening efforts will ultimately improve our citizens' health, but this process must be accelerated and the health



Figure 6: Author James E. Davis, M.D., far right, pictured with the 1992 awards recipients, from left: Bernard Fisher, M.D., Yuet W. Kan, M.D., D.Sc., and Bengt Samuelsson, M.D.



CITY OF MEDICINE, USA

DURHAM, NORTH CAROLINA

Official logo of the City of Medicine Program

requirements of our most needy more directly addressed. We must turn inward to better serve our own.

Durham County has a population of approximately 181,000, 72% of whom live within the city. Currently, 61% of Durhamites are white and 39% are black; it is estimated that by the year 2,000 the ratio will be 57% to 43%. In North Carolina and in the nation, the population grows at a rate of slightly more than 1% per year, but Durham's growth is now at 3.5% per year, and it is estimated that it will reach 4% by the end of this decade. We are growing rapidly, and the number of our needy grows even faster. Despite Durham's recent transformation to a health-related and high-tech economy, there remains a population of undereducated, unskilled, and largely unemployed individuals. Among the most disadvantaged is the group of single women raising children alone whose median income is \$13,240 for whites and \$8,254 for blacks.

Another recent problem is the dramatic increase in Durham's crime rate, largely due to drug trafficking. The drug epidemic has brought with it many health problems, including AIDS, which poses a threat to the health of an ever larger number of our citizens, many whom cannot afford adequate health care.

The City of Medicine Program, along with other health-related agencies and concerned individuals, seeks ways to address these problems. Since we believe that the problems of drugs, crime, teenage pregnancy, and sexually transmitted diseases must be addressed in our public schools at an early age, a City of Medicine task force is working to establish a model health curriculum for Durham's newly merged school system. We are working with other groups to coordinate and integrate prenatal, natal, and neonatal services in the community. Our two major hospitals are aware of the high costs of the delivery of large numbers of low-risk mothers in high-cost facilities. We are discussing a new system to prevent unwanted pregnancies, to enroll pregnant women into the health care system at the earliest possible time, and to assure prenatal care and the delivery of low-risk pregnant women in birthing centers.

In order to fund these and other community-wide health programs, we are developing plans for a City of Medicine Foundation that will solicit funds to help underwrite these community projects. The Durham community's greatest asset is the presence of a more cooperative and collaborative spirit than has been evident during the past 40 years. There is abundant evidence that leaders from all segments of our community now share the belief that by working together we can successfully address our needs and problems.

In 1993, as I look back at our 12-year history, I must

express my appreciation to two individuals whose fundraising efforts have allowed our programs to continue. Since 1990, Robert A. Ingram, executive vice president of Glaxo, Inc., has chaired and directed the committee that encourages and solicits our corporate citizens to purchase tables for the annual awards dinner. And I thank J.B. Brame, Sr., who has led the successful City of Medicine Support Campaign to gain financial support for the City of Medicine Program from physicians, hospitals, and corporate donors. Durham is especially blessed to have outstanding talent, a diversified community, and a willing spirit that motivates volunteers. If this new spirit continues to prevail, the future of the City of Medicine is bright indeed. □

In next month's issue:

In August, the *Journal* will present a special issue on Medical Ethics, guest edited by Larry R. Churchill, Ph.D., and Nancy M. P. King, J.D., of the Department of Social Medicine, UNC School of Medicine, Chapel Hill.

The issue will focus on advance directives, end-of-life issues, and ethics in medical education. It will include articles on the following topics, and more:

- Physician-Assisted Suicide
- New Options for Advance Directives in North Carolina
- Patient Waiver of Informed Consent
- Cultural Literacy of Professional Students
- The Medical Humanities Program at ECU
- The Medical Ethics Teaching Program at UNC-Chapel Hill

Doctors, Lawyers, and Personal Injury

Separating Myth from Fact

Tracy Kenyon Lischer, J.D., Ph.D.

Editor's note: Ms. Lischer sent us this article after a telephone conversation with the editor. It outlines her position and hope for better understanding between the medical and legal communities. The magnitude of the misunderstanding between these communities is reflected in the two commentaries that follow her article and in the absence of a third. We solicited the response of another doctor with medical and legal background, but he was unable to submit because of the strong negative feelings that Ms. Lischer's article evinced. We hope that dialogue is the beginning of a better understanding between doctors and lawyers, but we fear that lawyers do not appreciate how deep doctors' feelings run.

In my neighborhood doctors and lawyers and their families are friends. Outside the neighborhood, not so. In this article I attempt to separate fact from the myths that divide us. I write in the spirit of the medico-legal guidelines that state: "Physicians and attorneys must cooperate...to aid in the proper administration of justice," and that the "relationship between a physician and an attorney should be based upon mutual courtesy, understanding, and respect."

1. Myth: Juries can't be trusted to reach just and equitable decisions.

Fact: Our American heritage guarantees trial by jury. This process performs a guardian role against oppression, helps protect us against those who would threaten our health and safety, and sets standards for responsibility and fair dealing.

The Bill of Rights guarantees that we can seek the decision of a jury to redress wrongs. Our state constitution reads: "Trial by jury is one of the best securities of the rights of the people, and shall remain sacred and inviolable." Nevertheless, only a small percentage of all the cases filed are ever actually heard by a jury. About 90% of disputes involving individuals are resolved by settlement without a suit being filed. The people have never wanted to curtail trial by jury; only special interest groups have—and then only when they are the objects of a jury trial, not when they are seeking a trial to repair some injury done to them.

2. Myth: Requiring the loser in a lawsuit to pay the winner's fees and costs would deter frivolous claims.

Fact: The present contingency fee arrangement already screens out non-meritorious claims.

Since the attorney, who must bear the lion's share of costs, will receive no fee if the case is lost, the case must be strong before suit is filed. No attorney can afford to accept weak cases, or cases with insignificant damages, in the "hope" that the plaintiff will win. Therefore attorneys are highly discriminatory about the merits of a potential lawsuit and reject those that they are unlikely to win. Further, Rule 11 of the Rules of Civil Procedure allows substantial sanctions when a claim is brought without justification and is unsupported by fact or law.

On the other hand, without a contingency fee arrangement, only the wealthy could afford to bring lawsuits. And a public justice system that restricted access to the wealthy would be fundamentally flawed.¹

3. Myth: Plaintiffs' attorneys sue doctors.

Fact: Patients sue doctors, not attorneys. With medical records in tow, aggrieved, dissatisfied patients seek to tell their story to one attorney after another until someone listens. They are persistent. Often they are poor.² They ask their attorney questions, like these put to me:

- "My baby has a skin graft on his foot where the I.V. was, which tears as he grows. Was this preventable?"
- "My one-year-old was walking and talking normally until she got a fever. She saw the pediatrician who sent her home on Tylenol. That night the helicopter had to take her to the

Ms. Lischer is an attorney with Pulley, Watson & King, Attorneys at Law, Brightleaf Square, P.O. Drawer 3600, Durham 27702.

hospital. Now she does not talk, walk, hear, or see properly. Should the pediatrician have done more?"

- "I was on kick counts and went in when I felt a decrease in fetal movement. I was delivered by C-section of a 36-week boy who died. The doctors went ahead with a tubal ligation. Should my baby have died? Why did they perform the tubal?"
- "My baby was admitted for respiratory difficulties. A catheter was inserted into her leg and the leg had to be amputated. Did she receive appropriate care?"
- "My wife reported to our local emergency room three times, complaining of chest pain. She was x-rayed each time and sent home. The third time, I took her to a second hospital where she was admitted with pericardial effusion and remained for 22 days. Is her permanent injury worse because she was not admitted earlier?"

4. Myth: Plaintiffs' attorneys bring meritless claims on behalf of their clients.

Fact: Plaintiffs' lawyers actually keep many meritless claims out of the system by refusing to take such cases.

Since plaintiffs' lawyers are paid by contingency fee, they have a direct financial incentive to represent only those clients who have legitimate, winnable claims. A good plaintiff's attorney evaluates each case carefully. The case noted above of the child whose foot was injured by infiltration of an I.V. that was not secured or checked for one and a half hours was settled, before filing suit, for \$35,000.

Regarding the other cases cited, medical experts are evaluating the pediatric care received by the one-year-old who developed Adenovirus pneumonia and encephalitis. No lawsuit will be filed unless those medical experts decide that care was less than standard.

The autopsy report on the infant who died at birth indicated that he suffered from bilateral primary pulmonary hypoplasia. This case was turned down and the mother got her tubal ligation reversed.

Expert evaluation helped us determine that the loss of the child's leg after arterial thrombosis was not preventable because the child's condition made thrombolytic therapy dangerous. This case was declined.

Despite strong medical opinions that her care deviated from standard, and that there was resulting damage to the woman with pericardial effusion, I was the third attorney to decline the case for conflict of interest.

Lawyers decline many more personal injury cases than they take. During the past 12 months our office of seven attorneys has investigated 142 cases of alleged medical negligence and turned down 133 of them.

5. Myth: Litigation is exploding, and tort reform is needed to combat it.

Fact: The increase in litigation is due to domestic, criminal, contract, bankruptcy, and debt collection cases. Courtrooms are crowded with spouses suing each other. Trials that

last the longest and cost the most are those in which one corporate giant sues another or in which the government prosecutes white collar crime.³ In North Carolina the rate of filing of civil cases increases about 3% per year, less than the rise in inflation, in population, or in the cost of living.⁴ Each year, only one injury in 10 results in an attempt to bring a liability claim.⁵

6. Myth: Health care costs are increasing 10.5% a year because of the tort system.

Fact: Even if we completely eliminated the costs of the tort system, the average person would not notice a difference in their health care premium. President Bush's Comprehensive Health Reform Program acknowledged that malpractice premiums made up 74/100th of 1% of health care costs in 1990.⁶

Whether "defensive medicine" adds unnecessary costs is difficult to determine. A test, ordered because the physician feared a negligence claim and wished to exclude some diagnostic possibility, may result in better health care for the patient.

More relevant to health care costs is the recent study that determined that physicians who owned their own radiographic equipment referred patients for radiological evaluation 4.0 to 4.5 times more often than physicians who did not own such equipment.⁷ The North Carolina Medical Society has adopted a resolution requiring physicians to phase out self-referral.

North Carolina physicians are second only to Texas in income.⁸ In 1990, the gross income of an average North Carolina physician was \$312,500. Physicians typically pay less than 3% of their median gross income for malpractice insurance. Those physicians who choose not to deliver babies do so to avoid paying a \$3,500 to \$6,500 differential on their premium.

7. Myth: Doctors can't trust lawyers, and lawyers can't trust doctors.

Fact: Only doctors and lawyers working together can eliminate this myth. Our two professions are respected, envied, and feared more than any other. Both professions must comply with high ethical standards. Doctors must take the Hippocratic Oath and lawyers must swear to uphold the constitutions of the United States and the state of North Carolina, and to represent their clients zealously within the bounds of the law.

Plaintiffs' personal injury lawyers see themselves as champions, fighting for just compensation of those injured by negligence and malpractice. In North Carolina, plaintiffs' attorneys are spearheading the fight for a safer workplace in the wake of the disastrous fire at Hamlet. For years we have brought suits on behalf of workers whose limbs were amputated by machines after safety guards were removed to increase production. Ford Motor Co. stopped making Pinto gas tanks that exploded in rear-end collisions only because the publicity from lawsuits slowed the sales of the vehicle. Asbestos use has been curtailed because of vigorous advocacy by trial lawyers on behalf of workers. Contraceptive devices that caused birth defects and death were recalled because parents found personal injury lawyers to represent them. And plaintiffs' lawyers continue to

spend years of uncompensated time trying to win one case against the tobacco industry for marketing a product that kills.

Whenever a person is injured by the carelessness of someone else, doctors and lawyers need to become allies. This, after all, is the American system for compensating the injured, and

without it those injured might never be made whole. It is likely that no personal injury case (including those involving medical negligence) has ever been won without the objective testimony of a treating or expert physician. □

References

- 1 Citizens' Rights Commission of the North Carolina Academy of Trial Lawyers. Jan. 1993.
- 2 Brennar TA, Burster HR, Lipsitz SR, et al. Socioeconomic status and risk for substandard medical care. JAMA, Jan. 4, 1991.
- 3 National Center for State Courts, annual reports 1986-1990.
- 4 Id.
- 5 Hensler DR, et al. Compensation for accidental injuries in the United States. Rand Corporation, Santa Monica, CA 1991, pp 174-175.
- 6 The President's Comprehensive Health Reform Program: Malpractice law, appendix of Robert Reischauer, director of the Congressional Budget Office, testimony before the House Ways and Means Committee, March 4, 1992.
- 7 N Engl J Med 1990;323:1604-1608.
- 8 How doctors fare in the most populous states. Med Econ 1991:42-44.

Two Responses:

I. H. Alexander Easley, III, J.D., M.D., Greenville Obstetrics and Gynecology, P.A.

Whatever value it may have in resolving some types of personal wrongs in society, the present tort system is antiquated and unsophisticated, unacceptably inefficient and expensive, pitifully inaccurate, and biased toward the plaintiff when it deals with injuries to and unexpected outcomes for patients. Ms. Lischer's attempt to justify the present system is woefully lacking in substance. Her arguments are the old, tired, hackneyed incantations of the trial bar that all first-year law students learn. I would like to recast five of her "Myths" into forms more accurate for the medical world and then to comment on them.

1. Myth: Trial by jury is accurate and fair in medical malpractice cases. No doubt jurors do try to reach "just and equitable decisions" in medical malpractice cases. But that is the problem with asking juries to decide. They may indeed be compassionate toward a plaintiff, particularly one who appears severely disabled, but can they reach scientifically accurate decisions on complex medical controversies? How could they?

In North Carolina, jurors are selected from a sample of ordinary citizens, and are usually chosen precisely *because* they are ignorant about the topic of the case. As a result the jury in a medical malpractice case is really a jury of the plaintiff's peers. Most jurors are neither well-educated nor medically sophisticated, but are expected to digest volumes of very difficult information regarding disputed scientific concepts.¹

By the time a case reaches trial both sides' attorneys have done all in their legal and strained ethical power to draw diametrically opposite pictures of the standard of care. They bring in "experts" who unequivocally disagree on the standard of care and whether it was satisfied. Medical evidence is exasperating, complicated, and confusing, leading to sympathy for the plaintiff.¹ Sympathy becomes paramount, and then jurors do what most fair-minded humans would do—they take from those perceived by society to have "deep pockets" and give to the "less fortunate" plaintiff.

Creating this scenario and justifying such a verdict for the plaintiff is what makes an outstanding trial lawyer. There are a handful of these successful lawyers in North Carolina, and they have had a field day using this poorly designed system to become millionaires.² Overpowered and legally untrained insurance adjusters may settle cases purely out of fear of the jury system. Did the authors of the Bill of Rights really foresee this occurrence when they framed the Seventh Amendment?

2. Myth: Contingency fees provide indigent plaintiffs access to the tort system and defer frivolous claims. The contingency fee arrangement developed because the U.S. is the only major country that denies to the lawsuit winner the right to collect legal fees from the loser. Contingency fees did not arise from an altruistic desire to provide the poor with access to the tort system.³ Volunteer legal service could have provided such access much as Medicare and Medicaid provide medical access for the aged and poor. But government-funded legal services are available to indigents only in criminal cases. Contingency fees facilitate pursuit of high-dollar claims and deny access to claimants whose claims are not monetarily valuable. Why not make the loser pay the costs and fees in a lawsuit?

3. Myth: Plaintiffs' attorneys do not solicit medical malpractice cases. In substance, plaintiffs' attorneys indeed do sue doctors. It is common knowledge that litigating adverse obstetrical outcomes, for example, is immensely profitable for trial lawyers. Television, newspaper, and telephone book ads entice people with free consultations and you-only-pay-if-you-win offers to litigate. Not only lawyers but patients and their families are aware of the potential rewards of such litigation. The demise of formal restraints on solicitation to litigate opened the floodgates to a generation of trial lawyers who actively seek out cases by sophisticated, if indelicate, means.³

4. Myth: Medical liability claims really are not increasing and they do not affect the cost of health care. In fact,

liability claims and insurance premiums have increased dramatically. Nearly 80% of the fellows of the American College of Obstetricians and Gynecologists have been sued at least once, and claims against all physicians have risen from 3/100 to 10/100.⁴ Since 1982, liability insurance premiums for ob/gyns have increased 238%!⁵ The AMA says that defensive medicine adds at least \$15 billion in non-premium costs to the nation's health care bill every year.⁶ Since this measures only physician costs, the figure probably underestimates total defensive medicine costs, costs built into the charges for medical care and passed on to the patients. In fact 17.6% of the tab for physician services is due to liability premiums and defensive medicine.⁴ Is it really plausible then to allege that defensive medicine does not affect the cost of health care?⁶

Ms. Lischer cites some physician income figures supplied by *Medical Economics*, a notoriously biased source. Aside from implying that physicians make so much money that the cost of medical liability should be inconsequential to them, the point of presenting these unreliable data is unclear. AMA data show that primary care doctors earn about \$100,000 a year by working about 60 hours a week.⁷ But whatever they earn, physicians' worth should be determined by society's evaluation of their contributions just as society does for other services. That evaluation should not be undermined by income figures that create spite, disrespect, and jealousy.

5. Myth: Plaintiffs' attorneys do not bring meritless medical malpractice claims. Where are the data to substantiate *this* claim? One convincing source supporting the opposite view is the acclaimed Harvard Medical Practice Study, which found that 30,000 hospital admissions precipitated about 1,200 malpractice claims. There were many adverse medical events due to negligence that did not end up in claims, but 80% of the

claims actually brought were not due to any negligent care!⁸

Recently, two of my partners were summoned as defendants in separate lawsuits. One involves a patient who has breast cancer. She had a normal breast exam and then underwent screening mammography that showed microcalcifications not seen on prior mammogram. My partner made prompt referral to a general surgeon. The biopsy revealed breast cancer. Then she received optimum therapy. Where is the merit in her claim?

The second case involves a baby delivered in 1974 by another partner. The 35 weeks-pregnant mother presented to the emergency room in active labor at 11:55 p.m. My partner, called at 12:10 a.m., rushed to the hospital where he found the patient about to deliver a footling breech. Cesarean section was not an option. Despite all care and skill to effect delivery in this emergency, the baby had a spinal cord paralysis. Where is the merit in this claim?

Two excellent physicians, their families, our practice, and our patients will pay the emotional, psychological, and financial costs of defending these meritless claims.

Conclusion. No wonder doctors cannot trust lawyers. The threat of litigation is real. Claims without merit are indeed litigated by plaintiffs' lawyers. The process of litigation is expensive. Only 26 cents out of every premium dollar ends up in the hands of the claimant. Jurors, moved by sympathy for victims, sacrifice medical accuracy because of conflicting medical expert evidence acquired by the attorneys. The trial bar's strong and wealthy legislative lobby has thwarted attempts to correct some of the faults of the tort system and render it more accurate, efficient, and sophisticated in dealing with medical malpractice claims. Physicians face these real facts every day as they attempt to treat illness and ensure the health of patients who are increasingly seen as potential adversaries. □

References

- 1 Sugarman SD. The need to reform personal injury law leaving scientific disputes to scientists. *Science* 1990;248:823-827.
- 2 Brimelow P, Spencer L. The plaintiff attorneys' great honey rush. *Forbes*, October 16, 1989.
- 3 Olson WK. *The Litigation Explosion*. New York: Dutton, 1991.
- 4 American Medical Association. *The Impact of Professional Liability on Access to Health Care Service*. Chicago: Advocacy Brief, 1991.
- 5 American College of Obstetricians and Gynecologists. *Washington, D.C.: 1992 Professional Liability Survey*.
- 6 Can we afford the cost of medical liability? Chicago: AMA/Specialty Society Medical Liability Project, Aug. 1992.
- 7 American Medical Association. *Chicago: This Week*, 1993;3:14.
- 8 Localio AR, Lauthers AG, Brennan TA, et al. Relation between malpractice claims and adverse events due to negligence. *N Engl J Med* 1991;325:245-251.

II. Margaret N. Harker, M.D., Morehead City, Chair, North Carolina Medical Journal Editorial Board

My comments on Ms. Lischer's article center on her Myths 6 and 7 and are based on my own experience earlier this year as an expert witness. The trial was based on questionable incidents that occurred in 1987. I initially reviewed the problem about two years before testifying, and I spent many hours in conference, preparation, and deposition.

Before considering my experience with the legal system, let me turn to Myth 6 which reads, "health care costs are

increasing 10.5% a year because of the tort system." I must be the lowest income-producing physician in North Carolina because my gross practice income is only slightly more than half the quoted figure of \$312,500. From this, I pay all mortgage expenses, taxes, salaries, insurances of various sorts, supplies, utilities, and regulatory fees. This leaves substantially less than the \$312,500 Ms. Lischer reports as "fact."

I have much more to say regarding Myth 7: "Doctors can't

trust lawyers, and lawyers can't trust doctors." I am familiar with the 1986 joint North Carolina Medical Society and North Carolina Bar Association publication *Medico-Legal Guidelines of North Carolina*. A number of references in that publication speak to "mutual courtesy, understanding, and respect" between physicians and lawyers; and "mutual respect and professional judgment" of both professions. These admonitions seem to me mythical in light of my experience reviewing the case, being deposed, and testifying in court. I did happen to serve as an expert witness for the defense, but had heretofore thought that the principles outlined ought not apply to just one "side."

My experience at the deposition and the trial was pretty awful. I really felt harassed, pursued, and attacked. Only my belief that I had an ethical and moral obligation to stand behind my written case review and to participate in our judicial process kept me from quitting. From what I saw and heard of the examination of the defendant, it seemed that the person was most certainly presumed guilty until proved innocent. I thought the reverse was supposed to be true.

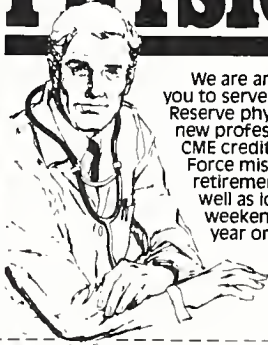
Perhaps my sole and first experience was not normal.

Maybe the medical-legal guidelines are *not* a myth. There is a small section within the booklet that reads: "The rules of evidence and court practice sanction vigorous examination to test the competence or credibility of a medical witness. Strong and vigorous cross-examination is an important aspect of our trial system and should be expected." It certainly should! Even in retrospect, I do not believe this advice was meant to encourage or condone the aggressive questioning of my ethics and motivation for testifying that occurred that day in court. If other practicing physicians have had a similar experience, I would like to hear from you. I will think even longer and harder before serving again.

I do believe in justice. At times it takes trials to get to the truth. I also believe in saving time, trees, and mental anguish. Do we really need expert witnesses for different "sides?" Would it not be possible to have panels of agreed-upon North Carolina practitioners who could serve as real expert witnesses? These experts would be attributed to neither side and could serve as real friends of the court and the jury.

I thank Ms. Lischer for presenting her thoughts, and I thank the editor for allowing me to present mine. □

PHYSICIANS



We are announcing opportunities for you to serve your country as an Air Force Reserve physician/officer. You can make new professional associations, obtain CME credit and help support the Air Force mission. For those who qualify, retirement credit can be obtained as well as low cost life insurance. One weekend a month plus two weeks a year or less can bring you pride and satisfaction in serving your country.

CALL: Or Fill Out Coupon and Mail Today!

To: MGST Linda Landrum
2400 RRMS/RSB-1
Bldg 1000, Room 112
Charleston AFB, SC 29404-6004

Name

Address

City State Zip

Phone Prior Service? Yes ☐ No ☐

Medical Specialty Date of Birth

AIR FORCE RESERVE

25-301-0009 A GREAT WAY TO SERVE

Fighting allergies is no place for amateurs.

Serious allergies require serious care – the kind that only well-trained professionals can provide. But if we're going to knock-out allergies, we need team work! That's where the Asthma and Allergy Foundation of America can help.

We're dedicated to helping you help your patients. We offer a toll-free patient information number, a full range of educational materials for adults and children and special school and community programs. Plus, we can put them in touch with our nationwide network of chapters and support groups.

Let us help you win the fight! We've been serving asthma and allergy sufferers for more than 40 years. For more information about our services or professional memberships, call us today.

**ASTHMA & ALLERGY
FOUNDATION OF AMERICA**

1125 15th St. NW, Suite 502, Washington, DC 20005

1-800-7-ASTHMA

New Members

John Calvin Britt (STUDENT), 3430 Sandy Creek Drive, Durham 27705
 Manuel J. Del Rio (RESIDENT), 5239-D Fox Hunt Drive, Greensboro 27407
 Barbara Ann Dixon (RESIDENT), NC Baptist Hospital, Medical Center Blvd., Winston-Salem 27157
 John Miguel Guerrero (STUDENT), 1809-H Falcon Tree Court, Winston-Salem 27127
 Thomas Francis Heston (RESIDENT), 1601 Owen Drive, Fayetteville 28304
 Tonya Marie Hudson (RESIDENT), 1602 Owen Drive, Fayetteville 28304
 Shiva Jarrahi (STUDENT), 651 Summit St., Apt. M, Winston-Salem 27101
 Michael Clayton Jones (OBG), 107 Country Club Drive, Concord 28025
 Timothy Patrick Manson (RESIDENT), 1601 Owen Drive, Fayetteville 28304
 Barbara Ellen Mayer (RESIDENT), P.O. Box 32861, Dept. of Family Practice, Charlotte 28232
 Earl Stacy Ransom, Jr. (AN), 106 St. Thomas Drive, Chapel Hill 27514
 Kathryn Ann Schultz (RESIDENT), 705-A Sunset Drive, Greensboro 27408
 Tariq Mohammed Sheikh (PD), 708 South St., Mount Airy 27030
 Angel Eduardo Torano (RO), 4102 Hulon Drive, Durham 27705
 Chirayu Udomsakdi (RESIDENT), 3611 University Drive, Apt 9T, Durham 27707

Buncombe

Edgardo Diez (PM), Thoms Rehab. Hospital, P.O. Box 15025, Asheville 28801
 James Edward Usedom (CD), P.O. Box 7239, 14 McDowell St., Asheville 28802

Burke

Shelli Elizabeth Cannon (FP), 103 Medical Heights Drive, Morganton 28655
 Roger Rush Hill (FP), 301 Linville St., Glen Alpine 28628

Catawba

Mark Jerome Anderson (U), 1202 N. Center St., Hickory 28601
 Charles David Scheil (DR), P.O. Box 308, Hickory 28603

Chowan-Perquimans

Chester Lee Trent (P), Box 675, Edenton 27932

Davidson

Baptiste Steven Marino (AN), Box 648, Lexington 27292

Duplin

Rodney K. Sessoms (IM), Rt. #2, Box 265, Rose Hill 28458

Durham-Orange

Robert Leigh Beach, UNC-CH, Neurology Dept., 751 Burnett-Womack Bldg., Chapel Hill 27599
 Peter Curtis (FP), UNC, Dept. of Family Medicine, Chapel Hill 27599
 Mary Kathleen Donovan, UNC-CH, Neurology Dept., 753 Burnett-Womack Bldg., Chapel Hill 27599
 Richard R. Gessner (STUDENT), 605 Jones Ferry Road, #KK7, Carrboro 27510
 Robert Carl Harland (GS), Box 3512, DUMC, Durham 27710
 Mark Alan Kliewer (R), Box 3808, DUMC, Durham 27710
 Robert Spinner (RESIDENT), 2704 Old Sugar Road, Durham 27707

Edgecombe

Melita Ann Adam-Ritter (AN), 111 Hospital Drive, Tarboro 27886

Forsyth-Stokes-Davie

William Henry Hubbard (FP), Family Practice Center, Medical Center Blvd., Winston-Salem 27157
 William Michael Lindel (OBG), 2927 Lyndhurst Ave., Winston-Salem 27103
 Jon Stuart Marks (STUDENT), 102 Echo Glen Drive, Apt. D-4, Winston-Salem 27106
 James Joseph O'Brien (AN), Bowman Gray School of Medicine, Medical Center Blvd., Winston-Salem 27157

Gaston

Richard Charles Avioli (ORS), 902 Cox Road, Suite D, Gastonia 28054
 David Waring Biggers (EM), 2525 Court Drive, P.O. Box 1747, Gastonia 28053

Granville

Stacy Benton Lewis, Jr. (OBG), 312 Main St., Oxford 27565

Greater Greensboro Society of Medicine

Vincent Anthony Bonanno (IM), 1511 Westover Terrace, Ste. 108, Greensboro 27408

High Point

Steven Craig Rohrbeck (CD), 624 Quaker Lane, 200E, High Point 27262
 Saul Samuel Schwarz (NS), 606 N. Elm St., High Point 27262

Mecklenburg

John Raymond Allibert (OBG), Dept. of Ob/Gyn, P.O. Box 32861, Charlotte 28211

Maureen Leonie Beurskens (OBG), 1023 Edgehill Road S., Charlotte 28207
 Charles Jacob Brown (D), 3535 Randolph Road, 101W, Charlotte 28211
 Cecilia Fabry Grasinger (OBG), 1718 E. Fourth St., Ste. 307, Charlotte 28204
 Deanna Kirchmayer (PM), Charlotte Institute of Rehab., 1100 Blythe Blvd., Charlotte 28203
 Jonathan Keith Levine (IM), 335 N. Caswell Road, Charlotte 28204
 Frederick Lee Newcomb, Jr., South East Anesthesia, P.O. Box 36351, Charlotte 28236
 Gordon Edgar Wuebbolt (OPH), 309 S. Laurel Ave., Charlotte 28207

New Hanover-Pender

Gary Alan Hyman (NEP), 1302 Medical Center Drive, Wilmington 28401
 David Ralph Miles (GS), 1414 Medical Center Drive, Wilmington 28401
 Charles Rogers Neal (RO), 1988 S. 16th St., Wilmington 28401
 Herman Kyle Rhodes (OBG), 1809 Glen Meade Road, Wilmington 28403

Pasquotank-Camden-Currituck-Dare

Robert Henry Goldwyn (OPH), 1142 N. Road St., Elizabeth City 27909

Pitt

Marcella F. Fierro, ECU School of Medicine, Greenville 27858
 Brenda Sue Waller (PM), 2100 Stantonsburg Road, Greenville 27834
 William Arthur Wooden (PS) Pitt County Memorial Hospital, Div. of Plastic Surgery, Rm. 284, Greenville 27858

Robeson

Aaron Russell Allen (N), 202 W. 27th St., Lumberton 28358
 Edward Frederic Lex Taylor (IM), 204 W. 28th St., Lumberton 28358

Wake

Andrew Anthony Bonin (FP), 3100 Duraleigh Road, Raleigh 27612
 Paul Stephen Wissel (IM), Glaxo Inc., 5 Moore Drive, 5-4618, RTP 27709

Wilson

Celso Benedito Lobao (P), 2124 W. Nash St., Wilson 27893

Continuing Medical Education

July 15-16

Advanced Trauma Life Support (ATLS)

Place: Greenville
 Credit: 17 hours Category I, AMA
 Info: Kay Cyrus, Department of Emergency Medicine, ECU School of Medicine, Greenville 27858. 919/551-2154

July 22-24

Summer Family Physicians Weekend

Place: Atlantic Beach
 Info: Rodney Webb, Director of CME, NCAFP, P.O. Box 18469, Raleigh 27619. 919/781-6467

August 5-6

Advanced Pediatric Life Support (APLS)

Place: Greenville
 Credit: 14.5 hours Category I, ACEP
 Info: Department of Emergency Medicine, ECU School of Medicine, Greenville 27858. Kay Cyrus 919/551-2154

August 6-7

Substance Abuse: Clinical Update for Medical Practitioners

Place: Wilmington Hilton
 Credit: 10 hours
 Fee: \$150 Doctoral/\$100 Non-doctoral
 Info: Holly Berryman or Mary Powell, Governor's Institute on Alcohol and Substance Abuse, P.O. Box 13374, Research Triangle Park 27709. 919/990-9559

September 14

Duke University Medical Center Pediatric HIV Conference

Place: Durham
 Fee: \$50 (registration, breaks, luncheon, social hour and CME credit)
 Info: Sonja Coble, Wake Medical Center, P.O. Box 14465, Raleigh 27620-4465. 919/250-8547

September 16-19

Sea Trail Medical Retreat and 10th Aesculapian Sports Classic

Place: Sea Trail Resort, Sunset Beach
 Credit: 12 hours Category I, AMA
 Info: Beryl Mehurg, Coastal AHEC, P.O. Box 9025, Wilmington 28402. 919/343-0161 (Registration deadline: Aug. 15)

CME Guidelines: The *Journal* will publish CME listings for a maximum of three months prior to the event. Please include the following information: date, title, place, number of credit hours, fees, and name, address, and phone number of contact person. Send to: Continuing Medical Education, **North Carolina Medical Journal**, Box 3910 DUMC, Durham, NC 27710; or fax to: 919/286-9219.



The Gift of Life

The children at St. Jude Children's Research Hospital take life one day at a time. At St. Jude, every second counts. The children here are fighting for their lives.

The doctors and researchers at St. Jude are working to find a way to defeat the deadly enemy: childhood cancer. Since St. Jude Hospital opened in 1962, it has forged new treatments for childhood cancer and has helped save the lives of thousands of children around the world. But the battle has just begun.

You can join the fight. To find out how, write to St. Jude Children's Research Hospital, P.O. Box 3704, Memphis, TN 38103. Or call 1-800-877-5833.



**ST. JUDE CHILDREN'S
RESEARCH HOSPITAL**

Danny Thomas, Founder

Classified Advertisements

FOR SALE: One used Boehringer Mannheim Reflotron Analyzer with original manual and instructions. Also have one DuPont Coumatrack Protime test system with manual and new Clia Training Notebook included. Both machines are in excellent working condition. If interested, please see Ayyaz M. Qureshi, M.D., or call his office at 919/548-2456.

FOR SALE: X-ray, Kodak processor, Coulter Counter, Abbott Vision (blood chemistry); maintenance contract on all above. Some furniture—five years old. Contact Ernest B. Page, Jr., M.D., P.O. Box 32072, Raleigh, NC 27622, or call 919/787-4045.

JAMESTOWN: Busy ambulatory care centers here and in Danville, VA, seek BC/BE Family or Emergency medicine practitioners. Excellent salary/benefits package. Send CV: Dr. William Ameen, P.O. Box 1176, Jamestown, NC 27282.

OXFORD, NC: 38-year-old family doctor needs BC family practitioner to share the practice of 67-year-old "ready to retire" partner. Call E.D. Day, M.D., 919/693-8126, 9 a.m. to 5 p.m.; 919/693-1715, nights/weekends.

RALEIGH, NC: Practice opportunity. Join three-pediatrician group in educational, cultural city. Teaching opportunities, consultations at nearby medical centers. Inquire Oberlin Road Pediatrics, 1321 Oberlin Road, Raleigh, NC 27608; or call Mary Anne Clark at 919/828-4747.

URGENT CARE: Immediate opportunity for FP/GP/IM. Forty-hour weeks, competitive compensation, independent contractor status. Stable organization since 1979 with strong commitment to quality urgent care and industrial medicine. Clifford K. Callaway, M.D., P.O. Box 667967, Charlotte, NC 28266; 704/521-5075.

UROLOGY POSITION—WESTERN NORTH CAROLINA: We seek a BC/BE Urologist to practice high-quality medicine in the beautiful mountains of western North Carolina. Drawing area of 120,000, 45 minutes from Asheville. Excellent schools and a four-year university. Successful and progressive full-service hospital. Income guarantee, relocation expenses, start-up assistance. Call coverage. Recently trained and experienced physicians considered. Please contact: Jeffrey Peebles, Tyler & Company, 1000 Abernathy Road, Suite 1400, Atlanta, GA 30328-5655; 800/883-8803 or 404/396-3939.

WESTERN NORTH CAROLINA: BC/BE internist to join three internists. Pleasant mountain community of 75,000. Send CV to: P.A. Sellers, M.D., 510 7th Ave. West, Hendersonville, NC 28739.

Classified Rates: For NCMS members: \$15 for the first 25 words, 25 cents for each additional word; for non-members: \$25 for the first 25 words, 25 cents for each additional word. Contact **North Carolina Medical Journal**, Box 3910, DUMC, Durham NC 27710; 919/286-6412; fax: 919/286-9219.

Aphorisms of the Month

Daniel J. Sexton, M.D., Editor

Never believe what a patient tells you his doctor has said.

—*Sir William Jenner*

It is our duty to remember at all times and anew that medicine is not only a science, but also the art of letting our own individuality interact with the individuality of the patient.

—*Albert Schweitzer*

The consultant's first obligation is to the patient, not to his brother physician.

—*Burton J. Hendrick*

The secrets of the consulting-room, my dear boy, are one-sided...The patient, though not the doctor, is at liberty to tell everything.

—*Graham Greene*

The physician must generalize the disease, and individualize the patient.

—*Christoph Wilhelm Hufeland*

Let me recommend you, as far as possible, to keep your doubts to yourself, and give the patient the benefit of your decision.

—*Oliver Wendell Holmes*

Once in a while you will have a patient of sense, born with the gift of observation, from whom you may learn something.

—*Oliver Wendell Holmes*

Send your favorite aphorisms (typed and double-spaced) to: Daniel J. Sexton, M.D., Box 3605, DUMC, Durham, NC 27710.

Index to Advertisers

B & B X-Ray, Inc.	321
CompHealth	345
CompuSystems, Inc.	Back cover
CSS, Inc.	345
Duke Univ. Med. Center Dept. of Pediatrics	322
Eli Lilly & Co.	307
IBM Corp.	Inside front cover
Knoll Pharmaceuticals	Insert after page 316
Medical Mutual Insurance Co.	341
Medical Protective Co.	Inside back cover
National Live Stock and Meat Board	333
NC Practice Management Assn.	303
The Nottingham Co.	327
Palisades Pharmaceuticals	325
St. Paul Fire and Marine Insurance Co.	305
U.S. Air Force	320
U.S. Air Force Reserve	356
U.S. Army	340
U.S. Army Reserve	311
U.S. Naval Reserve	327
Winchester Surgical Supply	301

We've been defending doctors since these were the state of the art.



Turn of the century trephine for cranial surgery and tonsillotome for removing tonsils.

These instruments were the best available at the turn of the century. So was our professional liability coverage for doctors. In fact, we pioneered the concept of professional protection in 1899 and have been providing this important service exclusively to doctors ever since.

You can be sure we'll always offer the most complete professional liability coverage you can carry. Plus the personal attention and claims prevention assistance you deserve.

For more information about Medical Protective coverage, contact your Medical Protective Company general agent.

1899

MEDICAL PROTECTIVE COMPANY

FORT WAYNE, INDIANA

Stuart Mitchelson
Suite 450, 10722 Carmel Commons Boulevard, Pineville, NC 28226
(704) 541-8020 or (704) 541-8021
(800) 633-2285

Robert Dowdy, J. Michael Luther
Suite 230, 2000 Regency Parkway
Cary, NC 27511, (919) 467-8370
(800) 633-2285





"The peace of mind I get from CompuSystems is the best testimonial I can give."

R. Bruce Jackson II, M.D., Boone, NC

Computer systems to fit your needs

"I first read an ad for CompuSystems on the back of this same journal. At the time, I had an older computer system that just wasn't meeting my needs. Then I learned that a change in the system to allow electronic filing would be quite expensive without really improving it.

"We invited a CompuSystems salesman by. His demonstration of the system in my office showed me that the enthusiastic references I'd heard weren't just hype. He took time to get to know our practice, and he helped us decide on a configuration that suits our needs. No pressure, just a responsive professional who answered all our questions."

Software that inspires confidence

"Now that we're using the system, I find I'm no longer worrying about the billing

and collections in my office. The age of my receivables has been dramatically reduced. I can design my own reports to extract almost any information from the system. Most of all, I'm confident that the business side of my practice is under control."

Gaining peace of mind

"The peace of mind I get from CompuSystems is the best testimonial I can give. It's an investment that allows me to focus on practicing medicine, instead of on the business of medicine.

"If you'd like to hear more, please feel free to call me or drop by."

- *More physicians in North and South Carolina choose CompuSystems' Medical Insurance Processing and Billing System than any other.*
- *Electronic filing directly to North Carolina Medicare, Medicaid, and BC/BS with no per-claim charges.*
- *Features to maximize return, improve cash flow, and increase productivity.*
- *"One-call" total system support, including on-site hardware service.*



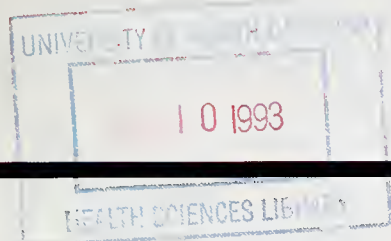
CompuSystems
INC.

Call now for details: 800-800-6472

The
Official Journal
of the
North Carolina
Medical Society
August 1993
Volume 54
Number 8

North Carolina Medical Journal

For Doctors and their Patients



SPECIAL ISSUE:

Ethics in Medicine

*Wrestling
with the
Demons
of Difficult
Decision*



Larry R. Churchill, Ph.D., and
Nancy M. P. King, J.D., Guest Editors

THERE IS
SOMETHING
IN OUR NAME
THAT BRINGS YOU
A FEELING OF
SECURITY.

CRUMPTON COMPANY

INSURANCE & ASSET MANAGEMENT

CRUMPTON COMPANY, INC.

PROFESSIONAL INSURANCE CONSULTANTS

CRUMPTON INVESTMENT COUNSEL, INC.

REGISTERED INVESTMENT ADVISOR

3001 Academy Center, P.O. Drawer 51939, Durham, N.C. 27717-1939, (800) 672-1674

NORTH CAROLINA MEDICAL JOURNAL

For Doctors and their Patients

Published Monthly as the Official Organ of the North Carolina Medical Society

August 1993, Volume 54, Number 8

(ISSN 0029-2559)

EDITOR

Francis A. Neelon, M.D.
Durham
919-286-6409

DEPUTY EDITOR

Edward C. Halperin, M.D.

CONSULTING EDITOR

Eugene A. Stead, Jr., M.D.

ASSOCIATE EDITORS

Eben Alexander, Jr., M.D.
Winston-Salem
William B. Blythe, M.D.
Chapel Hill
F. Maxton Mauney, Jr., M.D.
Asheville
Walter J. Pories, M.D.
Greenville

MANAGING EDITOR

Jeanne C. Yohn
Durham
919-286-6410
fax: 919-286-9219

EDITORIAL ASSISTANT

Jane Whalen

SECTION EDITORS

Eugene W. Linfors, M.D.
Daniel J. Sexton, M.D.

BUSINESS MANAGER

George E. Moore
Raleigh

EDITORIAL BOARD

Margaret N. Harker, M.D.,
Morehead City, CHAIR

MEMBERS

Jay Arena, M.D.
Durham
William B. Blythe, M.D.
Chapel Hill
Jack Hughes, M.D.
Durham
Timothy W. Lane, M.D.
Greensboro
Eugene S. Mayer, M.D.
Chapel Hill
Walter J. Pories, M.D.
Greenville
Robert W. Prichard, M.D.
Winston-Salem
Mary J. Raab, M.D.
Greenville

The Society is not to be considered as endorsing the views and opinions advanced by authors of papers delivered at the Annual Meeting or published in the official publication of the Society.—*Constitution and Bylaws of the North Carolina Medical Society*. Chap. IV, Section 3, pg. 4.

NORTH CAROLINA MEDICAL JOURNAL

Box 3910, Duke University Medical Center, Durham NC 27710, (919-286-6410/fax: 919-286-9219), is owned and published by The North Carolina Medical Society under the direction of its Editorial Board. Copyright©1993 The North Carolina Medical Society. Address manuscripts and communications regarding editorial matters, subscription rates, etc., to the Managing Editor at the Durham address listed above. Listed in *Index Medicus*. All advertisements are accepted subject to the approval of the Editorial Board of the North Carolina Medical Journal. The appearance of an advertisement in this publication does not constitute any endorsement of the subject or claims of the advertisement.

Advertising representatives: United Media Associates, Karl Messerrly, 16 Bruce Park Ave., Greenwich CT 06830; 203-661-9702; and Don French, Box 2093, Cary NC 27511; 919-467-8515.

Printing: The Ovid Bell Press, Inc., 1201-05 Bluff St., Fulton MO 65251.

Annual subscription (12 issues): \$17 (plus 6% tax in NC = \$18.02). Single copies: \$2. Second-class postage paid at Raleigh NC 27601, and at additional mailing offices. POSTMASTER: SEND ADDRESS CHANGES TO THE NORTH CAROLINA MEDICAL SOCIETY, 222 N. PERSON ST., RALEIGH NC 27601.

Winchester[®]

Surgical Supply Company

Physician/

Hospital/

Home Care Supplies

3333 North Tryon Street
P.O. Box 35488
Charlotte, NC 28235
704/372-2240
800/874-2240

"Serving The Medical Profession Since 1919"

**Medical ♦ Surgical ♦ Laboratory ♦ Diagnostic
Equipment and Supplies**

Winchester Home Healthcare

Medical Supplies And Equipment For Your Patients At Home
Charlotte, North Carolina
704/332-1217

North Carolina Medical Journal

FOR DOCTORS AND THEIR PATIENTS

Contents / August 1993, Volume 54, Number 8

On the cover: Demons depicted in "The Tribulations of St. Anthony" (engraving, c. 1470-75), by Martin Schongauer, symbolize the difficult issues involved in ethical decision-making. Used with permission of the Philadelphia Museum of Art, W.P. Wiltach Collection.

Special Issue: Medical Ethics

FROM THE GUEST EDITORS

- 367 Medical Ethics: Teaching and Practice *Larry R. Churchill, Ph.D., and Nancy M.P. King, J.D.*

ADVANCE DIRECTIVES

- 369 New Options for Advance Directives in North Carolina *John C. Moskop, Ph.D.*
- 373 Advance Directives and Do Not Resuscitate Orders at Bowman Gray-Baptist Hospital Medical Center
Richard P. Vance, M.D., Jack Ciancio, RN, and Eddie West, RN

END-OF-LIFE ISSUES

- 378 Physician-Assisted Suicide: Both Physicians and Christians Should Know That This is *Not* an Idea Whose Time Has Come *Harmon L. Smith, Jr., Ph.D.*
- 383 Beyond the No-Code Order *C. Glenn Pickard, Jr., M.D.*
- 386 An Exercise in Futility: Are We Bidden To "Treat" the Untreatable? *Rosemarie Tong, Ph.D.*

HEALTH WATCH

- 393 Addictions: Drug Abuse *North Carolina Medical Society*

DOCTOR-PATIENT RELATIONSHIPS

- 399 Patient Waiver of Informed Consent *Nancy M.P. King, J.D.*

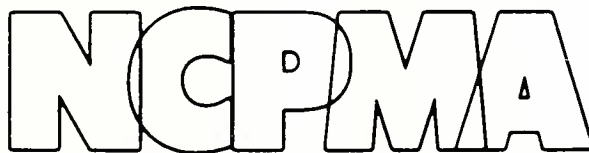
ETHICS IN EDUCATION

- 405 The Medical Ethics Teaching Program at UNC-Chapel Hill *Larry R. Churchill, Ph.D.*
- 409 The Medical Humanities Program at East Carolina University *Loretta M. Kopelman, Ph.D.*
- 415 Cultural Literacy of Professional Students
Richard P. Vance, M.D., Robert W. Prichard, M.D., and Charles King, M.D.

BULLETIN BOARD

- | | |
|----------------------------------|-----------------------------|
| 364 Letter to the Editor: | 423 Subscription Form |
| Reprint Request | 424 New Members |
| 364 Pearl of the Month | 426 Instructions to Authors |
| 421 Continuing Medical Education | 428 Aphorisms of the Month |
| 421 Classified Advertisements | 428 Index to Advertisers |

WHAT HAVE OVER 2000 NORTH CAROLINA PHYSICIANS DISCOVERED ABOUT THEIR PRACTICE?

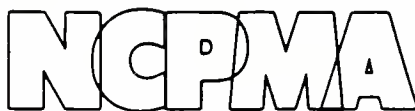


North Carolina Practice Management Association

These 2000 physicians rely on experienced members of the North Carolina Practice Management Association network to manage their practices. Our members are experienced advisors who work exclusively with the health care professionals of our state.

Our consultant members understand that medical skills alone are no longer the key to success. We understand the complexity and uniqueness of the ever changing health care environment.

The services available to clients are:
Practice Management Services
Financial Management Services
Accounting and Tax Services
Billing and Insurance
Retirement Plan Administration
Organizational Arrangements
Contract Negotiations and Review
Improved Performance and Profitability



Professional Management of Asheville, Inc.

99 McDowell Street
Asheville, N.C. 28801
Telephone: (704) 255-8711

Professional Management of Raleigh, Inc.

4913 Professional Court
Raleigh, N.C. 27609
Telephone: (919) 876-9711

Professional Management of Greensboro, Inc.

411-I Parkway Drive
Greensboro, N.C. 27401
Telephone: (919) 273-9777

Professional Consulting Services, Inc.

125 East Pennsylvania Avenue
Southern Pines, N.C. 28287
Telephone: (919) 692-4488

PMI Services Group, Inc.

2511 North Queen Street
Kinston, N.C. 28501
Telephone: (919) 522-1220

Professional Management of Winston-Salem, Inc.

2990 Bethesda Place, Suite 606-B
Winston-Salem, N.C. 27103
Telephone: (919) 765-1391

**Our Professional Network Serves All Counties in North Carolina
All Offices are Independently Owned**

Letters to the Editor

Reprint Request

To the Editor:

We would like to request permission to reprint "Screening Mammography for Breast Cancer by Jeffrey G. Wong, M.D. and John R. Feussner, M.D. (NCMJ 1993;54:257-60) in the *Delaware Medical Journal*.

We like to reprint certain topics featured in other medical journals so that the physicians of Delaware can also benefit from the articles.

Sharon Swayne
Assistant Editor,
Delaware Medical Journal
1925 Lovering Avenue
Wilmington, DE 19806

Reply from the Editor:

The *Journal* and Drs. Wong and Feussner are happy to grant permission to reprint this article, and we are pleased to share its content with our fellow physicians.

Guidelines for Letters:

All letters are subject to editing and abridgment. Letters should not exceed 500 words; longer letters are welcome, however, and we will consider them for publication elsewhere in the *Journal*. Letters must be typed, double-spaced, signed, dated, and include the author's phone number and address. Send letters to: NCMJ, Box 3910, DUMC, Durham, NC 27710; or fax them to: 919-286-9219.

Pearl of the Month

"To examine a baby without the baby or Mama crying:

1. Use that pretty sterile looking white-sheeted table as a place to hold instruments, chewing gum, or soft candy.
2. Examine the baby while she cuddles in her mama's lap."

—submitted by

Bruce B. Blackmon, M.D.
Buis Creek, NC 27506

We welcome other "pearls" from our readers. Send them to: NCMJ, Box 3910, DUMC, Durham, NC 27710.



Duke University Medical Center Pediatric HIV Conference

**Tuesday, September 14, 1993,
Sheraton University Center, Durham, North Carolina**

A full day's program for nurses, social workers, physicians, community workers, public health professionals, and all others dealing with infants, children, and mothers with HIV-infection/AIDS.

A multi-disciplinary program covering the current state of pediatric HIV, diagnosis and management, child protection issues, public health management, anti-retroviral therapy, nursing and psychosocial aspects, opportunistic infections, substance abuse, inter-disciplinary management of terminal illness, and the quality of life.

\$50 fee covers registration, breaks, luncheon, social hour, and CME credit.

For further information, contact Wake AHEC, Wake Medical Center, P.O. Box 14465, Raleigh, NC 27620-4465. Attention: Sonja Coble, or phone (919) 250-8547. Registration is limited.

TWO LANDMARK STUDIES,^{1,2}
PRESENTED AT THE
1992 AMERICAN COLLEGE OF
CARDIOLOGY MEETING,

FINALLY RESOLVED

**A 200-YEAR-OLD
CONTROVERSY...**

LANOXIN IS EFFECTIVE IN CONGESTIVE HEART FAILURE PATIENTS IN NORMAL SINUS RHYTHM, WITH OR WITHOUT AN ACE INHIBITOR.^{1,2*}

¹The RADIANCE—Randomized Assessment of Digoxin on Inhibitors of the ANgiotensin Converting Enzyme—study was a multicenter, randomized, double-blind, placebo-controlled study of digoxin in CHF patients receiving diuretics and ACE inhibitors.

²The PROVED—Prospective Randomized study of Ventricular failure and the Efficacy of Digoxin—study was a multicenter, randomized, double-blind, placebo-controlled study of digoxin in CHF patients receiving diuretics.



In early CHF.

LANOXIN[®]

(digoxin) Tablets

125 µg (0.125 mg)
250 µg (0.25 mg)
500 µg (0.5 mg)

EFFECTIVE THERAPY... WITH OR WITHOUT AN ACE INHIBITOR.

Please see brief summary of prescribing information below.

LANOXIN[®] (DIGOXIN) TABLETS

Before prescribing, physicians should be thoroughly familiar with all aspects of this cardiac (or digitalis) glycoside as discussed in the full prescribing information.

Brief Summary

CONTRAINDICATIONS:

(1) ventricular fibrillation, (2) an untoward effect requiring discontinuation of other digitalis preparations, and (3) a hypersensitivity or allergy to digoxin.

WARNINGS: The use of digoxin for the treatment of obesity is dangerous since it may cause potentially fatal arrhythmias. Anorexia, nausea, vomiting and arrhythmias may be indications of digitalis toxicity; if so, digoxin should be temporarily withheld when possible. Patients with renal insufficiency require smaller than usual maintenance doses of digoxin. Heart failure accompanying acute glomerulonephritis requires extreme care in digitalization and careful monitoring. Relatively low loading and maintenance doses and concomitant use of antihypertensive drugs may be necessary. Digoxin should be discontinued as soon as possible in this setting. Patients with severe cardiac disease are especially sensitive to digoxin-induced rhythm disturbances. Newborn infants display considerable variability in their tolerance to digoxin with premature and immature infants being particularly sensitive, reduce and individualize dosage accordingly. Note. Digoxin is an important cause of accidental poisoning in children.

PRECAUTIONS: Digoxin toxicity develops more frequently and lasts longer in patients with renal impairment because of the decreased excretion of digoxin. Normal potassium and magnesium levels should be maintained in patients treated with digoxin. Calcium, particularly when administered rapidly by the intravenous route, may produce serious arrhythmias in digitalized patients. Hypercalcemia predisposes the patient to digitalis toxicity, whereas hypocalcemia can cause digoxin to become ineffective. Patients with acute myocardial infarction or severe pulmonary disease may be unusually sensitive to digoxin-induced rhythm disturbances. Atrial arrhythmias associated with hypermetabolic states are particularly resistant to digoxin treatment. Large doses of digoxin are not recommended as the only treatment of these arrhythmias; if large doses are required, be careful to avoid toxicity. In hypothyroidism, digoxin requirements are reduced. Reduction of digoxin dosage may be desirable before electrical cardioversion to avoid induction of ventricular arrhythmias. If digitalis toxicity is suspected, elective cardioversion should be delayed. Patients with incomplete AV blocks may progress to advanced or complete heart block when given digoxin, especially in patients with Stokes-Adams attacks. Digoxin may worsen sinus bradycardia or sinoatrial block in patients with sinus node disease. Digoxin may cause rapid ventricular rates and ventricular fibrillation in patients with Wolff-Parkinson-White Syndrome and atrial fibrillation. Because it may worsen the outflow obstruction in patients with idiopathic hypertrophic subaortic stenosis (IHSS), digoxin should only be used in severe cardiac failure in this setting. Patients with chronic constrictive pericarditis may fail to respond to digoxin. Slowing of the heart rate by digoxin in some patients may further decrease cardiac output. Patients with heart failure from amyloid heart disease or constrictive cardiomyopathies respond poorly to digoxin. (See DRUG INTERACTIONS section.)

Laboratory Tests Serum electrolytes and renal function should be assessed periodically.

Drug Interactions. Potassium-depleting corticosteroids and diuretics may be major contributing factors to digitalis toxicity. Calcium, particularly if administered rapidly by the intravenous route, may produce serious arrhythmias in digitalized patients. Quinidine, verapamil, amiodarone, and propafenone cause a rise in serum digoxin concentration, with the implication that digitalis intoxication may result. Certain antibiotics increase digoxin absorption in patients who inactivate digoxin by bacterial metabolism in the lower intestine, so that digitalis intoxication may result. Propantheline and diphenoxylate, by decreasing gut motility, may increase digoxin absorption. Antacids, kaolin-pectin, sulfasalazine, neomycin, cholestyramine, certain anticancer drugs and meloclopramide may reduce intestinal digoxin absorption, resulting in unexpectedly low serum concentrations. There have been inconsistent reports regarding the effects of other drugs on the serum digoxin concentration. Thyroid administration to a digitalized, hypothyroid patient may increase

the dose requirement of digoxin. Concomitant use of digoxin and sympathomimetics increases the risk of cardiac arrhythmias because both enhance ectopic pacemaker activity. Succinylcholine may cause a sudden extrusion of potassium from muscle cells, and may thereby cause arrhythmias in digitalized patients. Although β adrenergic blockers or calcium channel blockers and digoxin may be useful in combination to control atrial fibrillation, their additive effects on AV node conduction can result in complete heart block.

Carcinogenesis No long-term animal studies have been performed to evaluate carcinogenic potential.

Pregnancy: Pregnancy Category C. Animal reproduction studies have not been conducted with digoxin. Digoxin should only be given to a pregnant woman if clearly needed.

Nursing Mothers Studies have shown that the digoxin concentration in the mother's milk is far below the usual infant maintenance dose and should have no pharmacologic effect upon the infant. Nevertheless, caution should be exercised when digoxin is administered to a nursing woman.

ADVERSE REACTIONS The overall incidence of adverse reactions has been reported as 5 to 20%, with 15 to 20% (1 to 4% of all patients) of them being considered serious. Evidence suggests that the incidence of toxicity has decreased since the introduction of the serum digoxin assay and improved standardization of digoxin tablets. Cardiac toxicity accounts for about one-half, gastrointestinal disturbances for about one-fourth, and CNS and other toxicity for about one-fourth of these adverse reactions.

Adults: Cardiac—unifocal or multifocal VPCs; ventricular tachycardia, AV dissociation, accelerated junctional (nodal) rhythm and atrial tachycardia with block, excessive slowing of the pulse, AV block (Wenckebach) of increasing degree may proceed to complete heart block.

Gastrointestinal: anorexia, nausea, vomiting, occasionally diarrhea, and very rarely hemorrhagic necrosis of the intestines and abdominal pain.

CNS: visual disturbances, headache, weakness, dizziness, apathy and psychosis.

Other: gynecomastia.

Infants and Children: Anorexia, nausea, vomiting, diarrhea and CNS disturbances may be present but are rare as initial symptoms in infants. Cardiac arrhythmias are more reliable signs of toxicity. Digoxin in children may produce any arrhythmia. Most common are conduction disturbances or SVTs, such as atrial tachycardia with or without block, and junctional (nodal) tachycardia. Ventricular arrhythmias are less common. Sinus bradycardia may also be a sign of impending digoxin toxicity, especially in infants, even in the absence of first degree heart block.

September 1991 542253

PLEASE CONSULT FULL PRODUCT INFORMATION BEFORE PRESCRIBING

References: 1. Packer M, Gheorghide M, Young JB, et al. Randomized, double-blind, placebo-controlled, withdrawal study of digoxin in patients with chronic heart failure treated with converting enzyme inhibitors. *J Am Coll Cardiol.* 1992;19:260A. Abstract. 2. Young JB, Uretsky BF, Shahidi FE, Yellen LG, Harrison MC, Jolly MK. Multicenter, double-blind, placebo-controlled randomized withdrawal trial of the efficacy and safety of digoxin in patients with mild to moderate chronic heart failure not treated with converting enzyme inhibitors. *J Am Coll Cardiol.* 1992;19:259A. Abstract.



Burroughs Wellcome Co.
Research Triangle Park, NC 27709

Medical Ethics

Teaching and Practice

Larry R. Churchill, Ph.D., Nancy M.P. King, J.D.

The papers in this special issue of the *North Carolina Medical Journal* consider various aspects of medical ethics. They have several goals: to acquaint readers with the variety of ways in which medical ethics is taught in North Carolina's medical schools; to allow readers to share in sustained critical reflection about some important ideas in medical ethics scholarship; and to provide practical information, observation, and advice about current ethics issues faced by physicians.

Medical ethics is booming. Nearly all medical schools teach ethics; the National Board of Medical Examiners and an increasing number of specialty boards devote examination questions to ethical issues; the nightly news, the popular press, and the medical literature are full of the ethical questions facing medicine. Yet medical ethics issues can all too easily seem abstruse, exotic, inaccessible, or peripheral to the concerns of most physicians. Teachers of medical ethics seek to overcome these barriers, locating medical ethics squarely within the doctor-patient relationship, and promoting the habit of reflection about the issues both within the medical community and between physicians and the public.

The articles in this issue are written by teachers of medicine and medical ethics. They reflect the different kinds of work teachers do in different settings and for different audiences. Three articles address ethics in medical education: Churchill and Kopelman provide descriptions of the curricula and teaching philosophies at the University of North Carolina and East Carolina University schools of medicine; Vance argues for the role of "cultural literacy" in ethics education at Bowman Gray. Another group of articles examines practical, everyday concerns of the doctor-patient

relationship and the use of advance directives. These include King's discussion of patients who decline or waive informed consent, Moskop's useful update on the North Carolina's

advance directive statutes, and Vance's report on advance directives at Baptist Hospital. Finally, three authors address critical issues at the end of life: Smith argues eloquently against physician-assisted suicide, Pickard details with empathetic clarity how to talk realistically with patients and families about care at the end of life, and Tong reviews the elusive concept of futile treatment by

identifying the role of medical judgment in treatment choices and suggesting directions for further thinking and practice reform.

This rich selection of subjects, styles, and foci is representative of medical ethics in North Carolina, but it is certainly not exhaustive. We have not attempted to include the work of dozens of ethics committees in hospitals large and small across the state, nor have we mentioned the teaching programs in bioethics and medical humanities at many of the state's universities and colleges. Consideration of all such programs and activities would be far too long for a single issue of the *Journal*. We do hope, however, that this issue will provide impetus for conversation and debate on the shape and mission of teaching programs in medical ethics. Some of the problem-oriented articles will provoke disagreement. We invite readers to respond through the *Journal*. In ethics, as in most fields, we learn more by airing our disagreements than through unanimity of opinion. We hope that this issue will stimulate readers to create and sustain the professional and the public discussion needed for the continuing development of medical ethics. □

"We hope that this issue will stimulate readers to create and sustain the professional and the public discussion needed for the continuing development of medical ethics."

From the Department of Social Medicine, University of North Carolina, CB #7240, Wing D, Chapel Hill 27599-7240.

Zantac® 150 (ranitidine hydrochloride) Tablets

Zantac® 300 (ranitidine hydrochloride) Tablets

Zantac® (ranitidine hydrochloride) Syrup

BRIEF SUMMARY

The following is a brief summary only. Before prescribing, see complete prescribing information in Zantac® product labeling.

INDICATIONS AND USAGE: Zantac® is indicated in: 1. Short-term treatment of active duodenal ulcer. 2. Maintenance therapy for duodenal ulcer patients at reduced dosage after healing of acute ulcers. 3. The treatment of pathological hypersecretory conditions (e.g., Zollinger-Ellison syndrome and systemic mastocytosis). 4. Short-term treatment of active, benign gastric ulcer. 5. Treatment of gastroesophageal reflux disease (GERD). 6. Treatment of endoscopically diagnosed erosive esophagitis.

Concomitant antacids should be given as needed for pain relief to patients with active duodenal ulcer, active, benign gastric ulcer, hypersecretory states, GERD, and erosive esophagitis.

CONTRAINDICATIONS: Zantac® is contraindicated for patients known to have hypersensitivity to the drug or any of the ingredients.

PRECAUTIONS: General: 1. Symptomatic response to Zantac® therapy does not preclude the presence of gastric malignancy.

2. Since Zantac is excreted primarily by the kidney, dosage should be adjusted in patients with impaired renal function (see DOSAGE AND ADMINISTRATION). Caution should be observed in patients with hepatic dysfunction since Zantac is metabolized in the liver.

3. Rare reports suggest that Zantac may precipitate acute porphyric attacks in patients with acute porphyria. Zantac should therefore be avoided in patients with a history of acute porphyria.

Laboratory Tests: False-positive tests for urine protein with Multistix® may occur during Zantac therapy, and therefore testing with sulfosalicylic acid is recommended.

Drug Interactions: Although Zantac has been reported to bind weakly to cytochrome P-450 *in vitro*, recommended doses of the drug do not inhibit the action of the cytochrome P-450-linked oxygenase enzymes in the liver. However, there have been isolated reports of drug interactions that suggest that Zantac may affect the bioavailability of certain drugs by some mechanism as yet unidentified (e.g., a pH-dependent effect on absorption or a change in volume of distribution).

Increased or decreased prothrombin times have been reported during concurrent use of ranitidine and warfarin. However, in human pharmacokinetic studies with dosages of ranitidine up to 400 mg per day, no interaction occurred; ranitidine had no effect on warfarin clearance or prothrombin time. The possibility of an interaction with warfarin at dosages of ranitidine higher than 400 mg per day has not been investigated.

Carcinogenesis, Mutagenesis, Impairment of Fertility: There was no indication of tumorigenic or carcinogenic effects in life-span studies in mice and rats at dosages up to 2,000 mg/kg per day.

Ranitidine was not mutagenic in standard bacterial tests (*Salmonella*, *Escherichia coli*) for mutagenicity at concentrations up to the maximum recommended for these assays.

In a dominant lethal assay, a single oral dose of 1,000 mg/kg to male rats was without effect on the outcome of two matings per week for the next 9 weeks.

Pregnancy: Teratogenic Effects: Pregnancy Category B: Reproduction studies have been performed in rats and rabbits at doses up to 160 times the human dose and have revealed no evidence of impaired fertility or harm to the fetus due to Zantac. There are, however, no adequate and well-controlled studies in pregnant women. Because animal reproduction studies are not always predictive of human response, this drug should be used during pregnancy only if clearly needed.

Nursing Mothers: Zantac is secreted in human milk. Caution should be exercised when Zantac is administered to a nursing mother.

Pediatric Use: Safety and effectiveness in children have not been established.

Use in Elderly Patients: Ulcer healing rates in elderly patients (65-82 years of age) were no different from those in younger age-groups. The incidence rates for adverse events and laboratory abnormalities were also not different from those seen in other age-groups.

ADVERSE REACTIONS: The following have been reported as events in clinical trials or in the routine management of patients treated with Zantac®. The relationship to Zantac therapy has been unclear in many cases. Headache, sometimes severe, seems to be related to Zantac administration.

Central Nervous System: Rarely, malaise, dizziness, somnolence, insomnia, and vertigo. Rare cases of reversible mental confusion, agitation, depression, and hallucinations have been reported, predominantly in severely ill elderly patients. Rare cases of reversible blurred vision suggestive of a change in accommodation have been reported. Rare reports of reversible involuntary motor disturbances have been received.

Cardiovascular: As with other H₂-blockers, rare reports of arrhythmias such as tachycardia, bradycardia, atrioventricular block, and premature ventricular beats.

Gastrointestinal: Constipation, diarrhea, nausea/vomiting, abdominal discomfort/pain, and rare reports of pancreatitis.

Hepatic: In normal volunteers, SGPT values were increased to at least twice the pretreatment levels in 6 of 12 subjects receiving 100 mg q.i.d. intravenously for 7 days, and in 4 of 24 subjects receiving 50 mg q.i.d. intravenously for 5 days. There have been occasional reports of hepatitis, hepatocellular or hepatocellular or mixed, with or without jaundice. In such circumstances, ranitidine should be immediately discontinued. These events are usually reversible, but in exceedingly rare circumstances death has occurred.

Musculoskeletal: Rare reports of arthralgias and myalgias.

Hematologic: Blood count changes (leukopenia, granulocytopenia, and thrombocytopenia) have occurred in a few patients. These were usually reversible. Rare cases of agranulocytosis, pancytopenia, sometimes with marrow hypoplasia, and aplastic anemia and exceedingly rare cases of acquired immune hemolytic anemia have been reported.

Endocrine: Controlled studies in animals and man have shown no stimulation of any pituitary hormone by Zantac and no antiandrogenic activity, and cimetidine-induced gynecomastia and impotence in hypersecretory patients have resolved when Zantac has been substituted. However, occasional cases of gynecomastia, impotence, and loss of libido have been reported in male patients receiving Zantac, but the incidence did not differ from that in the general population.

Integumentary: Rash, including rare cases suggestive of mild erythema multiforme, and, rarely, alopecia.

Other: Rare cases of hypersensitivity reactions (e.g., bronchospasm, fever, rash, eosinophilia, anaphylaxis, angioneurotic edema, and small increases in serum creatinine).

OVERDOSAGE: There has been limited experience with overdosage. Reported acute ingestions of up to 18 g orally have been associated with transient adverse effects similar to those encountered in normal clinical experience (see ADVERSE REACTIONS). In addition, abnormalities of gait and hypotension have been reported.

When overdosage occurs, the usual measures to remove unabsorbed material from the gastrointestinal tract, clinical monitoring, and supportive therapy should be employed.

Studies in dogs receiving dosages of Zantac® in excess of 225 mg/kg per day have shown muscular tremors, vomiting, and rapid respiration. Single oral doses of 1,000 mg/kg in mice and rats were not lethal. Intravenous LD₅₀ values in mice and rats were 77 and 83 mg/kg, respectively.

DOSAGE AND ADMINISTRATION: (See complete prescribing information in Zantac® product labeling.)

Dosage Adjustment for Patients With Impaired Renal Function: On the basis of experience with a group of subjects with severely impaired renal function treated with Zantac, the recommended dosage in patients with a creatinine clearance less than 50 mL per minute is 150 mg or 10 mL (2 teaspoonfuls equivalent to 150 mg of ranitidine) every 24 hours. Should the patient's condition require, the frequency of dosing may be increased to every 12 hours or even further with caution. Hemodialysis reduces the level of circulating ranitidine. Ideally, the dosing schedule should be adjusted so that the timing of a scheduled dose coincides with the end of hemodialysis.

 **Glaxo Pharmaceuticals**
DIVISION OF GLAXO INC.

Zantac® 150 Tablets/Zantac® 300 Tablets: Glaxo Pharmaceuticals, Research Triangle Park, NC 27709. Zantac® Syrup: Manufactured for Glaxo Pharmaceuticals, Research Triangle Park, NC 27709, by Roxane Laboratories, Inc., Columbus, OH 43216.

© Copyright 1992, Glaxo Inc. All rights reserved.

ZA2858

Printed in USA

July 1992
2145

July 1993

One Of A Kind



Zantac®
ranitidine HCl/Glaxo 150 mg and
300 mg tablets

**For The Treatment Of
Reflux Disease, Duodenal Ulcer Disease,
And Benign Gastric Ulcer**

Glaxo/ 

New Options for Advance Directives in North Carolina

John C. Moskop, Ph.D.

Widespread discussion of the ethics and law of forgoing life-sustaining treatment, initiated by the case of Karen Ann Quinlan in the mid-1970s,¹ is now well into its second decade. In response to the Quinlan case, a number of states, including North Carolina in 1977, enacted "natural death acts."²

"North Carolinians (have)
important new options
for health care
decision-making."

These statutes gave legal recognition to one type of advance directive, the living will. ("Advance directive" is a generic term that refers to any of several types of documents that enable persons to provide, in advance, for medical treatment choices that may arise after they have lost the capacity to make those choices themselves.) The North Carolina living will (or "Declaration of a Desire for a Natural Death" as the statute entitles it) allows persons to state their desires regarding the use of life-sustaining medical treatment in the event that they are terminally ill and lack decision-making capacity. It authorizes physicians to invoke the document, when appropriate, in order to withhold or discontinue life-sustaining treatment. The North Carolina Natural Death Act also establishes an optional procedure for withholding or discontinuing life-sustaining treatment from incompetent, terminally ill patients who have not executed a living will.

In a 1984 article in the *North Carolina Medical Journal*,³ I commented on several potential shortcomings of the North Carolina Natural Death Act and recommended that it be expanded to include another kind of advance directive, called a proxy directive or durable power of attorney, which had recently been endorsed by the President's Commission for the Study of Ethical Problems in Medicine and Biomedical and Behavioral Research.⁴ Using that type of advance directive, a person (called the principal) authorizes another individual (called a proxy, health care agent, or attorney-in-fact) to make health care decisions for the principal in the event that he or she is no longer able to do so. I am pleased to report that, in its 1991 session, the North Carolina General Assembly did enact legislation that specifically recognizes this second type of advance directive;⁵ at the same time, the General Assembly made several

significant changes to the existing North Carolina Natural Death Act.⁴ The 1991 law, passed in response to the U.S. Supreme Court decision of 1990 in the case of Nancy Cruzan,⁶ gives North Carolinians important new options for health care decision-making. In this essay I describe and assess

these new options, examining first the recent revisions of the North Carolina Natural Death Act and then the new Health Care Powers of Attorney statute.

Revisions to the North Carolina Natural Death Act

The 1991 Amendments to the North Carolina Natural Death Act clarify and expand the scope of the earlier statute in four important ways: 1) they specify an additional condition—persistent vegetative state—in which life-sustaining treatment can be withheld or discontinued; 2) they explicitly identify artificial nutrition and hydration as treatments that can be forgone; 3) they alter the order of persons authorized to concur with the forgoing of treatment for patients who have no living will; and 4) they add to the statute a statement that a living will executed under this law may be combined with or incorporated into a health care power of attorney document. Let us consider each of these major revisions in more detail.

Persistent vegetative state. Prior to these amendments, the Natural Death Act authorized the withholding or discontinuance of life-sustaining treatment only when the patient's medical condition was terminal and incurable (as determined by the attending physician and confirmed by a second physician). Thus, the statute did not authorize treatment abatement for persons in a persistent vegetative state or other forms of permanent unconsciousness. Though incurable, these conditions are not, strictly speaking, terminal, since patients in such states may be kept alive indefinitely. Karen Ann Quinlan, for example, lived 10 years in a persistent vegetative state after being weaned from her respirator in 1976.⁷ The amendment expands the scope of the statute to

From the Department of Medical Humanities, East Carolina University, School of Medicine, Greenville 27858.

cover patients in a persistent vegetative state, which it defines broadly as "a medical condition whereby in the judgment of the attending physician the patient suffers from a sustained complete loss of self-aware cognition and, without the use of extraordinary or artificial nutritional or hydration, will succumb to death within a short period of time."⁵ This definition is clearly broad enough to include other states of permanent unconsciousness, such as irreversible coma, in addition to the strict neurological understanding of persistent vegetative state.

The 1991 Amendments revise the standard form for a Declaration of a Desire for a Natural Death ("living will") to allow the declarant to state separately and explicitly what forms of treatment he or she wishes to have withheld or withdrawn in the event of a persistent vegetative state in addition to a terminal, incurable condition. The amendments also allow the withholding or discontinuance of life-sustaining treatment from patients in a persistent vegetative state who do not have a living will (with the concurrence of the patient's health care agent, guardian, or family, as appropriate).

Artificial nutrition and hydration. Before 1991, the Natural Death Act authorized, in appropriate circumstances, the withdrawal or discontinuance of "extraordinary means" of life support, defined as "any medical procedure or intervention, which in the judgment of the attending physician would serve only to postpone artificially the moment of death by sustaining, restoring, or supplanting a vital function."² The statute clearly left judgments about which treatments constituted "extraordinary means" to the attending physician. A few commentators have argued that nutritional support should never be withheld or withdrawn,⁸ and the federal "Baby Doe" regulations regarding the treatment of infants with life-threatening conditions hold that "appropriate nutrition, hydration, and medication" must *always* be provided.⁹ In contrast, the North Carolina Medical Society, in 1989, adopted a "Policy on Death with Dignity in North Carolina" that endorsed the withholding of artificial hydration and nutrition in appropriate circumstances.¹⁰

The 1991 Amendments revise the statute to state explicitly that artificial nutrition and hydration may be withheld or discontinued. The revised form for a Declaration of a Desire for a Natural Death allows the declarant to specify whether he or she authorizes the withholding or discontinuance of artificial nutrition or hydration in addition to extraordinary means. It also authorizes the withholding or discontinuation of artificial nutrition or hydration, in the appropriate circumstances, from patients without a living will.

Concurrence with decisions to forgo treatment. Unlike the "natural death" statutes enacted by most other states in the 1970s and 1980s, the North Carolina Natural Death Act specifies procedures for withholding or withdrawing treatment from terminally ill, incompetent patients who have *not* executed a living will as well as those who have done so. The procedure for withholding or discontinuing treatment from

patients without a living will adds one additional condition to the procedure for those with a living will; namely, the concurrence of a person or persons in a specific order. Prior to 1991 the order of persons authorized to concur with this decision was: 1) the person's spouse, 2) a guardian of the person, or 3) a majority of the relatives of the first degree (parents and children). The 1991 Amendments revise this order to take account of the new Health Care Powers of Attorney statute. The new order is: 1) a health care agent appointed by means of a valid health care power of attorney, 2) a guardian of the person, 3) the person's spouse, or 4) a majority of the relatives of the first degree.

Combining living wills and health care powers of attorney.

A clause the amendments added to the Natural Death Act, and a corresponding statement in the health care powers of attorney statute, make clear that a Declaration of a Desire for a Natural Death can be combined with a health care power of attorney in a single document, provided that the resulting document is appropriately signed, witnessed, and proved. Such a document enables an individual to appoint a health care agent *and*, in the same document, provide specific instructions regarding treatment in a terminal condition or persistent vegetative state.

The New Health Care Powers of Attorney Statute

Each of the four revisions examined above represents a significant change in the Natural Death Act. Even more significant, however, is the formal recognition of a new type of advance directive for health care—the Health Care Powers of Attorney statute.

The General Assembly's 1991 action creates a new type of power of attorney specifically designed for health care decisions. Under this statute, a person (called the principal) may authorize another person (called the health care agent) "to make health care decisions to the same extent that the principal could make those decisions for himself or herself if he or she had understanding and capacity to make and communicate health care decisions, including, without limitation, the power to authorize withholding or discontinuing life-sustaining procedures."⁵ This authorization goes into effect only when a physician designated by the principal (or, if that physician is unable or unwilling to act, the principal's attending physician) certifies in writing that the principal is unable to make or communicate decisions about his or her health care. This legislation, then, allows persons to say *who* will make health care decisions for them during their incapacity. In a health care power of attorney document, the principal may also include specific instructions for the health care agent or specific limitations on the agent's power.

For several reasons, the new option of appointing a health care agent by means of a health care power of attorney will be more attractive to many people than executing a

living will. First, it allows the principal to participate, through the health care agent, in a broader range of health care choices. The living will applies only when the patient is in a terminal condition or a persistent vegetative state, and it applies only to decisions about withholding or discontinuing extraordinary means or artificial nutrition or hydration. But the health care power of attorney goes into effect whenever a designated physician certifies that the patient cannot make his or her own decisions, and it applies to all treatment decisions that the patient, if able, could have made for himself or herself.

A second reason that the health care power of attorney is attractive is because it allows the principal to designate another person, ideally a trusted confidante, as the one to make health care decisions for the principal in the event of incapacity. Principals, therefore, may feel reassured that their wishes regarding health care will be clearly understood and faithfully carried out by the agents appointed. The health care agent can make those decisions for the principal based on specific knowledge about the patient's present condition and prognosis. In contrast, in a living will, a person can express only relatively general preferences regarding treatment. The person's attending physician is authorized to interpret and, in the event of terminal illness or persistent vegetative state, invoke the patient's living will. That physician may or may not have had an opportunity to get to know the patient and to discuss treatment preferences before the patient lost the ability to do so.

The health care power of attorney statute also seeks to clarify the relationship between health care agents and legal guardians or other attorneys-in-fact. Before this legislation was enacted, some North Carolinians had used an existing "all-purpose" durable powers of attorney statute to authorize an agent to make health care decisions for them. The new statute affirms that these earlier power of attorney designations for health care remain valid. If, however, a person does appoint a health care agent under the new legislation, that agent's specific power to make health care decisions for the principal is superior to any similar powers granted to another person under a general power of attorney.

The statutory form of the new health care power of attorney includes a provision that allows the principal to nominate his or her health care agent to be guardian of the person of the principal, should such an appointment become necessary. If a guardian of the person is appointed, the health care power of attorney becomes ineffective.

Finally, the Health Care Powers of Attorney statute provides criminal and civil liability protection for persons, including health care agents and professionals, and institutions who act in accordance with its provisions.

The Patient Self Determination Act and The Goals of Advance Directives

In 1990, the U.S. Congress enacted (as part of the Omnibus Budget Reconciliation Act of 1990) the Patient Self Determination Act.¹¹ This federal legislation was designed to increase the public's awareness of its right to participate in health care decision-making, especially by means of advance directives. The law, which became effective December 1, 1991, requires all health care institutions that receive federal funds (including hospitals, nursing facilities, hospices, home care programs, and health maintenance organizations) to provide information to their patients or clients about their rights to participate in health care decision-making. It also requires that institutions ask their patients or clients whether they have an advance directive, and make note of their response.

The Act specifies that, in the case of hospitals and nursing facilities, this exchange take place upon admission to the institution. Admission is, for most hospital patients, not an optimal time to receive information about advance directives. The existence of this requirement, however, gives physicians a good reason to raise the issue of advance directives with their patients in preparation for a hospital or nursing home stay. Prior discussion of advance directives may help to achieve several desirable goals. First, it can encourage individuals to reflect on their own desires regarding life-prolonging health care. Second, it can encourage individuals to explore these issues with their physicians and their families, determine preferences, communicate these to families and physicians, and appoint a health care agent to carry out these preferences or express them in a living will. Third, advance directives can enable the individual's preferences to be honored even when he or she is no longer able to express them, thereby expanding the scope of personal self-determination. Because they can help to achieve these important goals, advance directives, recently an object of attention by North Carolina's General Assembly, also deserve the attention of North Carolina's physicians. □

References

- 1 In re Quinlan, 70 NJ 10 (1976).
- 2 North Carolina General Statutes, Article 23, Chapter 90 (G.S. 90-321 to 322).
- 3 Moskop JC. Problems and prospects for the "living will" in North Carolina. NC Med J 1984; 45:93-95.
- 4 President's Commission for the Study of Ethical Problems in Medicine and Biomedical Research. Deciding to forego life-sustaining treatment. Washington, D.C., 1983.
- 5 North Carolina General Statutes, Article 3, Chapter 32A (G.S. 32A-15 to 26, 1991).

- 6 Cruzan v. Director, Missouri Dept. Health, 1105. Ct 2841 (1990).
- 7 A review of New Jersey's "right to die" cases. Info Trends: Medicine, Law and Ethics 1988; 3(3):1.
- 8 Derr PG. Why food and fluids can never be denied. Hastings Center Report 1986; 16(1):28-30.
- 9 Child Abuse and Neglect Prevention and Treatment Program. 45 CFR 1340.15, April 15, 1985.
- 10 North Carolina Medical Society. Policy on death with dignity in North Carolina. Insert to Bulletin, a suppl. to NC Med J 1990; 51(1).
- 11 Rouse F. Patients, providers, and the PSDA. Hastings Center Report 1991; 21(5):51-52.

Our Roots Run Deep.



North Carolina physicians created Medical Mutual to protect the State's health care providers. For 17 years, we've kept the professional liability market open and stable – and we've built a strong company to weather the inevitable storms ahead.

Medical Mutual. We'll be there when you need us.



Medical Mutual Insurance Company of North Carolina

919.872.7117 800.662.7917

Offices in Raleigh, Greenville and Charlotte.

Advance Directives and Do Not Resuscitate Orders at Bowman Gray-Baptist Hospital Medical Center

Richard P. Vance, M.D., Jack Ciano, RN, and Eddie West, RN

Ethical issues surrounding death and dying have been medical concerns at least since the time of the Hippocratic Oath.¹ Indeed, questions about withdrawing or withholding therapies continue to vex modern medical ethics.²⁻⁵ During the past two years these questions and concerns have gained unprecedented prominence. Specifically, the Patient Self-Determination Act of 1990 brought the issue of advance directives (ADs) into the everyday operation of health care institutions.⁶ ADs are declarations, which people make before they become unable to make decisions, that specify that they do not want to receive certain medical therapies (see "New Options for Advance Directives in North Carolina" by John C. Moskop, Ph.D., on page 369 of this issue). These new laws were introduced into an already adversarial legal climate that makes it very difficult for physicians and patients to obtain *objective* information.

Problems concerning the changes in AD laws are compounded by long-standing confusions about do not resuscitate (DNR) orders.^{7,8} Some ethicists still lump together ADs and DNRs, and physicians (especially those unfamiliar with ADs and DNRs) occasionally confuse the purpose of ADs and DNRs. DNRs are orders issued by physicians; ADs are decisions made by patients. ADs may influence a physician's decision to write a DNR order, but they cannot force the physician to issue such an order. On the other hand, DNR orders can appropriately be written in the absence of ADs. We are aware of some instances in which a physician has acted as though the existence of an AD mandates that a DNR order be written, regardless of the patient's competence or prognosis. As most physicians know, ADs become effective *only when the patient is incompetent* and they apply *only to specific conditions* such as terminal illness or the persistent vegetative state.

Dr. Vance is with the Section on Medical Humanities and the Department of Pathology, Bowman Gray School of Medicine, and Mr. Ciano and Mr. West are with the Division of Nursing and the Department of Medical Staff Services, North Carolina Baptist Hospitals, Inc., Winston-Salem 27157.

During May 1992, the Division of Nursing at Bowman Gray/Baptist Hospital Medical Center created a new advance directives education program to educate patients and medical center staff regarding advance directives, and to provide assistance to patients who want to execute ADs. The director of the program tabulates AD forms for all in-patients and records the number of referrals received from patients interested in AD information, and the number of times he has helped to execute ADs.

In order to better assess current practices and policies governing ADs and DNRs at our institution, we reviewed AD forms for more than 12,000 in-patient records (to our knowledge, the largest sample ever surveyed), and we reviewed 187 consecutive DNR orders written at Bowman Gray/Baptist Hospital Medical Center. We report our findings here and comment on the issues that make the implementation of ADs and DNR orders difficult for physicians. In addition, we report the results of our innovative program involving the full-time advance directives educator.

Materials and Methods

The advance directive policy at Bowman Gray/Baptist Hospital Medical Center requires that the Ethics Committee tabulate patient responses to federally mandated Patient Self-Determination Act questions. Forms that admitting nurses fill out during the first 24 hours of patient admission are transmitted by facsimile to a designated number and entered into a data base (SPSS/PC+ DataEntry program) by nursing administrative staff. Between December 1, 1991, and November 25, 1992, we collected 12,058 forms regarding 19,215 in-patients (response rate = 63%). The forms include information about patient age and gender and answers to questions about the ability of the patient to discuss ADs, about whether the patient received and read the North Carolina-specific information relating to ADs, about whether the patient had an AD and, if so, whether it was placed on the chart, and about whether the patient wanted more information on ADs.

For two months beginning March 1, 1992, the Office of Medical Staff Services reviewed the medical records of all patients who were discharged from or who died at our institution (n=3,456) to see if a DNR order had been written. Both the order sheets and the daily progress notes were reviewed. In addition, we determined the number of physicians involved in writing either notes or orders, whether the attending physician was involved in the writing, whether the patient or family was informed or consulted about the DNR order, whether the patient had an AD, whether the AD was in the patient's chart, the rationale for the DNR order, the condition of the patient, and whether the DNR order was canceled.

Results

Table 1 summarizes the results of 12,058 patient-AD forms received. The data are grouped according to the date at which we began the AD education program (5,652 patients before May 1992, and 6,406 patients after). The gender distribution and age range (18 to 99 years) are similar in both groups. Fourteen percent of patients had a living will. Ten percent to 14% of patients claimed to have a Designated Health Care Power of Attorney (DHCPOA); we believe that this is far too high. Many people do not understand that the DHCPOA differs from a general power of attorney. The frequency of other advance directives (medical directives, etc.) in both groups was 3%. Women had executed ADs slightly more frequently than men, but the differences were not significant.

Table 2 displays the monthly and total statistics compiled by the advance directives educator. The frequency of referrals each month is now five to six times higher than at the start.

A total of 122 living wills and 119 DHCPOAs were executed in the first seven months of the program but, since most patients executed both documents, these numbers represent only 14% of the referrals. Overall, about 14% of patients wanted more information about ADs, and only 14% of those seeking more information actually executed ADs. Our educational efforts therefore increased the frequency of ADs in our patient population by approximately 2%.

Table 3 summarizes the 187 consecutive DNR orders written on 3,456 patients discharged from, or dying in, our institutions in March and April 1992. DNR orders were written for 5.4% (187/3,456) of all patients. The DNR policy at Bowman Gray/Baptist Hospital during this period required that only one physician (who could be a resident physician) write a DNR order. The attending (staff) physician was not required by the hospital to write the DNR order. Some medical specialty services had stricter policies, re-

Table 1. A summary of the results of 12,058 patient-AD forms received

	Prior to Educator	Post Educator
Total patients	5,652	6,406
Percent male	52%	53%
Percent female	48%	47%
Mean age	52.1 years	54.5 years
Percent/(no.) with living wills	14% (774)	14% (880)
Percent/(no.) with durable health care power of attorney	14% (762)	10% (630)
Percent/(no.) with other ADs	3% (188)	3% (177)
Percent able to discuss ADs on admission	71%	77%
Percent who had read standard information during admissions process	35%	39%
Percent/(no.) who wanted more information	14% (801)	14% (887)

Table 2. Monthly and total statistics compiled by advance directives educator

Month	May	June	July	Aug	Sept	Oct	Nov	Totals
Total referrals	35	90	93	120	149	206	160	853
Living wills executed	7	10	11	19	22	32	21	122
Durable health care power of attorney documents executed	7	10	9	19	23	32	19	119

Table 3. Summary of 187 consecutive DNR orders written on 3,456 patients discharged from, or dying in, our institutions in March and April 1992.

	no.	%
Total number of charts with DNR orders reviewed	187	100%
Two physicians wrote separate notes in the chart	40	21%
Attending physician wrote note in chart addressing DNR	39	21%
Two physicians signed the DNR order	10	5%
Attending physician signed DNR order	16	9%
Evidence patient was informed of DNR decision	89	48%
Evidence family was informed of DNR decision	121	65%
Evidence of advance directive		
Living will	26	14%
Durable health care power of attorney	9	5%
Other advance directive	8	4%
Copy of advance directive in the chart	17	9%
Rationale for DNR order in the note		
Patient's condition	67	36%
Futility of treatment	2	1%
Both	46	25%
Patient's condition included as part of rationale		
Terminal	53	28%
Persistent vegetative state	8	4%
Dementia	30	16%
Competent patient asking to be DNR	8	4%
Other	30	16%
Therapies specified to be withheld other than CPR		
Vasopressors	11	6%
Artificial hydration/nutrition	0	0%
Other	44	24%
DNR order cancelled during period of review	8	4%

quiring either the involvement of two physicians or the involvement of the attending physician. Fewer than 10% of DNR orders were written by two physicians or by the attending physician. In only 20% of cases were two physicians or the attending physician involved in writing notes on the chart. Overall, a single physician was involved in 68% of the cases. In 12% of cases, no note was written in the chart to explain the DNR order.

In 48% of cases there was evidence that the patient was consulted about the DNR order. This is approximately twice the frequency in previously reported series.⁹⁻¹² The family was consulted in 65% of the cases, a frequency comparable to other studies.⁹⁻¹² The percentage of cases in which an AD played a part in the decision to write a DNR (4%-14%) is

about that found in the general patient population (see Table 1). A copy of an AD was on the chart in 9% of DNR cases, compared to 3% of the general patient population. DNR orders were canceled in 4% of the cases.

Discussion

Our records show that 71% of patients admitted before May 1992, and 77% of those admitted after were capable of discussing ADs (Table 1). This difference might reflect a difference in the two patient populations, but we believe it more likely reflects the growing confidence of nurses in discussing issues of ADs with patients. Indeed, we have noticed that our programmatic educational efforts have especially helped improve nursing understanding of ADs. In fact, during the last two months, more than 85% of patients were judged as capable of discussing these issues.

At the time of admission, less than 40% of patients had read the standard information provided about ADs. This is consistent with our prejudice that hospitalization, with its attendant psychological stress, is hardly an appropriate time for people to reflect on AD issues. Physician members of the Ethics Committee have reported to us that some patients are distinctly unwilling to even discuss ADs. This suggests that the impact of the Patient Self-Determination Act, while still significant, will be substantially less than that hoped for by its sponsors.

Fourteen percent of patients indicated that they wanted more information about ADs and, as expected, very few of them had already executed ADs. These 14% were contacted by the advance directives educator. Since 14% of patients already had ADs, we believe that a successful education effort might double that frequency. In fact during the past two months, the frequency of patients requesting information has increased to 20%, probably reflecting the increased skill of nurses in communicating AD information to patients.

Our review of patient self-determination activities at our institution provides some important insights. Our results support the general impression that about 10% of the general public have ADs.¹³ In our sample of more than 12,000 patients, approximately 14% had ADs, but we would expect

admitted patients to have at least a slightly higher frequency of ADs than the general (not ill) population. We also found considerable confusion about the new DHCPOA document. Only by educating health care personnel to distinguish this document from those dealing specifically with financial matters can we obtain a more accurate assessment of DHCPOA frequency.

Advanced Directives, Safe Harbors, and Litigation

Current North Carolina laws regarding advance directives are among the best in the nation.¹⁴ They are extremely flexible and, short of assisted suicide or active euthanasia, appear to provide patients with much the same control over their dying as if they were competent to make such decisions. Advance directives allow patients to exercise their fundamental right to determine therapy or make decisions about themselves and to control the manner in which they die.¹⁵

However, in order to encourage recognition of patient rights, AD legislation also provides a mechanism whereby physicians can obtain immunity from civil and criminal litigation when they withhold or withdraw life-sustaining therapies. Since there are real benefits in acting under the safe harbor (immunity) provisions, physicians ought to know when their actions fall within them and when they do not. Yet this safe harbor also creates, in our adversarial legal climate, an unusual legal incentive that is seldom critically examined, and that often works against the interest of patient rights.

Therefore, even when physicians know about advance directives, and participate actively in educating patients and in the formulating ADs for patients, controversies may face them when they act on these documents. For example, lawyers defending patient rights argue quite plausibly that competent patients retain a virtually unlimited right to determine what will or will not be done to them. However, lawyers defending institutional interests claim that the withdrawal or withholding of therapies should follow only those procedures outlined in the North Carolina statute. Their rationale is that the safe harbor reduces overall risk to the institution. Indeed, they often consider the risk of being sued for battery by providing unwanted treatment to be considerably less than that of withholding therapy for a patient whose condition falls outside the safe-harbor guidelines in the North Carolina statute. Furthermore, some institutional attorneys argue that even competent patients who want to have life-sustaining therapy withheld should be forced to execute ADs before their wishes are honored.

Another confusion regarding ADs concerns the conditions to which they apply. A popular misconception is that living wills govern almost any serious condition during which patients become incompetent to make decisions for themselves. Instead, the standard living will in North Carolina governs only terminal conditions and the persistent vegetative state.¹⁶ "Terminal" is not defined specifically in

the North Carolina statute, and some attorneys say its meaning is almost infinitely flexible (that "everyone is terminal"). This sort of advice frustrates physicians who must practice in the context of professional standards of medical judgment. A more helpful definition is that "terminal" means the patient will die within the next 12 months regardless of treatment. Persistent vegetative state refers to the permanent "sustained complete loss of self-aware cognition"—the condition of Nancy Cruzan and Karen Ann Quinlan.^{16,17}

Standard living wills do not include provision for decisions to be made for a patient who is demented but non-terminal although many people mistakenly think otherwise. Attorneys who represent patients insist that the patient's verbal expressions should guide the physician's decision to withhold or withdraw therapies, especially when those verbal expressions are contained in ADs. For example, the family of a demented patient who had previously executed a living will might request that the attending physician withdraw life-sustaining therapy because those previous wishes represent a valid expression of self-determination. However, institutional attorneys will argue that therapy should not be withdrawn regardless of previous verbal expression.

Litigious issues also affect DNR orders. Attorneys representing institutions argue that DNR orders should adhere strictly to the procedures in the North Carolina statute and should involve two physicians in all instances. Attorneys for patients and physicians argue that the decision to resuscitate a patient is one of the most important and personal parts of a doctor-patient relationship; consequently, bureaucratizing the process by involving strangers (such as physicians who do not know the patient well) works against the ethics of medical practice. Institutional attorneys argue that DNRs should be written only on terminal patients or patients in a persistent vegetative state. Attorneys representing patients consider this an inappropriate infringement on patient self-determination, especially when the patient is competent.

Conclusion

What advice should physicians follow? It would be comfortably noble, but naïve, to recommend simply that physicians follow their conscience and act always in the patient's "best interest." Nevertheless, while our adversarial legal climate cannot be ignored, it is important to remember the relative rarity of litigation in the area of death and dying. According to Meisel's recent review,¹⁸ only 0.2%-0.5% of deaths resulting from forgoing of life-sustaining treatment have been litigated since the Quinlan decision in 1975.² However, attorneys who represent health care institutions in North Carolina have successfully argued for restrictive policies in many hospitals and nursing homes. Such policies undoubtedly are frustrating to many physicians trying to implement a patient's wishes. Although the Bowman Gray/Baptist

Hospital Medical Center and a handful of other institutions have been able to resist the most conservative recommendations, far too many North Carolina physicians encounter extremely restrictive institutional policies. Our hope is that the medical profession can help to educate the public about these problems, and to work to make our institutions more responsive to the right of patients to a peaceful and natural death. □

References

- 1 Pernick MS. Back from the grave: recurring controversies over defining and diagnosing death in history. In: Zaner, RM (ed). *Death: Beyond Whole-Brain Criteria*. Boston: Kluwer, 1988, pp 17-74.
- 2 Meisel A. The legal consensus about forgoing life-sustaining treatment: its status and its prospects. *Kennedy Inst Ethics J* 1993;2:309-345.
- 3 President's Commission for the Study of Ethical Problems in Medicine and Biomedical and Behavioral Research. *Deciding to Forego Life-Sustaining Treatment*. Washington, D.C.: U.S. Government Printing Office, 1983
- 4 Weir RF. Decisions to abate life-sustaining treatment for nonautonomous patients. *JAMA* 1990;264:1846-1853.
- 5 Hastings Center. *Guidelines on the Termination of Life-Sustaining Treatment and the Care of the Dying*. Briarcliff Manor, NY, 1987.
- 6 Patient Self-Determination Act. Pub. L. 101-508, §§ 4206, 4751, 42 USC § 139 cc(f)(1) & 42 USC § 1396a(a) (Supp. 1991).
- 7 Younger SJ, Lewandowski W, McClish DK, et al. Do not resuscitate orders. *JAMA* 1985;253:54-57.
- 8 Uhlmann RE, Cassel CK, McDonald WJ. Some treatment-withholding implications of no-code orders in an academic hospital. *Crit Care Med* 1984;12:879-881.
- 9 Bedell SE, Delbanco TL. Choices about cardiopulmonary resuscitation in the hospital. *N Engl J Med* 1984;310:1089-1093.
- 10 Evans AL, Brody BA. The do-not-resuscitate order in teaching hospitals. *JAMA* 1985;253:2236-2239.
- 11 Bedell SE, Pelle D, Maher PL, Cleary PD. Do-not-resuscitate orders for critically ill patients in the hospital. *JAMA* 1986;256:233-237.
- 12 Jonsson PV, McNamee M, Campion EW. The do not resuscitate order: a profile of its changing use. *Arch Int Med* 1988;148:2373-2375.
- 13 Emanuel LL, Barry ML, Stoeckle JD, et al. Advance directives for medical care—a case for greater use. *N Engl J Med* 1991;324:889-895.
- 14 Areen J. Advance directives under state law and judicial decisions. *Law Med Health Care* 1991;19:91-100.
- 15 Orentlicher D. Advance medical directives. *JAMA* 1990;263:2365-2367.
- 16 Right to a Natural Death. North Carolina General Statutes. GS §90 320-322.
- 17 Cranford R. Neurological syndromes and prolong survival: when can artificial nutrition and hydration be forgone? *Law Med Health Care* 1991;19:13-22.
- 18 Meisel A. Legal myths about terminating life support. *Arch Int Med* 1991;151:1497-1502.

YOCON®

YOHIMBINE HCl

Description: Yohimbine is a 3a-15a-20B-17a-hydroxy Yohimbine-16a-carboxylic acid methyl ester. The alkaloid is found in Rubaceae and related trees. Also in *Rauwolfia Serpentina* (L) Benth. Yohimbine is an indolalkylamine alkaloid with chemical similarity to reserpine. It is a crystalline powder, odorless. Each compressed tablet contains (1/12 gr.) 5.4 mg of Yohimbine Hydrochloride.

Action: Yohimbine blocks presynaptic alpha-2 adrenergic receptors. Its action on peripheral blood vessels resembles that of reserpine, though it is weaker and of short duration. Yohimbine's peripheral autonomic nervous system effect is to increase parasympathetic (cholinergic) and decrease sympathetic (adrenergic) activity. It is to be noted that in male sexual performance, erection is linked to cholinergic activity and to alpha-2 adrenergic blockade which may theoretically result in increased penile inflow, decreased penile outflow or both.

Yohimbine exerts a stimulating action on the mood and may increase anxiety. Such actions have not been adequately studied or related to dosage, although they appear to require high doses of the drug. Yohimbine has a mild anti-diuretic action, probably via stimulation of hypothalamic centers and release of posterior pituitary hormone.

Reportedly, Yohimbine exerts no significant influence on cardiac stimulation and other effects mediated by B-adrenergic receptors, its effect on blood pressure, if any, would be to lower it; however no adequate studies are at hand to quantitate this effect in terms of Yohimbine dosage.

Indications: Yocon® is indicated as a sympatholytic and mydriatic. It may have activity as an aphrodisiac.

Contraindications: Renal diseases, and patient's sensitive to the drug. In view of the limited and inadequate information at hand, no precise tabulation can be offered of additional contraindications.

Warning: Generally, this drug is not proposed for use in females and certainly must not be used during pregnancy. Neither is this drug proposed for use in pediatric, geriatric or cardio-renal patients with gastric or duodenal ulcer history. Nor should it be used in conjunction with mood-modifying drugs such as antidepressants, or in psychiatric patients in general.

Adverse Reactions: Yohimbine readily penetrates the (CNS) and produces a complex pattern of responses in lower doses than required to produce peripheral a-adrenergic blockade. These include, anti-diuresis, a general picture of central excitation including elevation of blood pressure and heart rate, increased motor activity, irritability and tremor. Sweating, nausea and vomiting are common after parenteral administration of the drug.^{1,2} Also dizziness, headache, skin flushing reported when used orally.^{1,3}

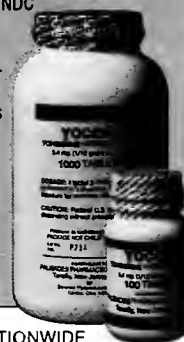
Dosage and Administration: Experimental dosage reported in treatment of erectile impotence.^{1,3,4} 1 tablet (5.4 mg) 3 times a day, to adult males taken orally. Occasional side effects reported with this dosage are nausea, dizziness or nervousness. In the event of side effects dosage to be reduced to ½ tablet 3 times a day, followed by gradual increases to 1 tablet 3 times a day. Reported therapy not more than 10 weeks.³

How Supplied: Oral tablets of Yocon® 1/12 gr. 5.4 mg in bottles of 100's NDC 53159-001-01 and 1000's NDC 53159-001-10.

References:

1. A. Morales et al., *New England Journal of Medicine*: 1221, November 12, 1981.
2. Goodman, Gilman — *The Pharmacological Basis of Therapeutics* 6th ed., p. 176-188. McMillan December Rev. 1/85.
3. *Weekly Urological Clinical letter*, 27:2, July 4, 1983.
4. A. Morales et al., *The Journal of Urology* 128: 45-47, 1982.

Rev. 1/85



AVAILABLE AT PHARMACIES NATIONWIDE

**PALISADES
PHARMACEUTICALS, INC.**

64 North Summit Street
Tenafly, New Jersey 07670
(201) 569-8502
1-800-237-9083

Physician-Assisted Suicide

Both Physicians and Christians Should Know that This Is *Not* an Idea Whose Time Has Come

Harmon L. Smith, Jr., Ph.D.

On May 20, 1992, the National Cathedral in Washington, D.C., sponsored "A Forum on Terminal Illness and Assisted Suicide: Medical and Christian Moral Perspectives," which was held in the cathedral nave. Dr. Timothy Quill and the Reverend David J. Baird (rector of Grace Church, Washington) spoke in support of physician-assisted suicide. I was invited to speak on "the moral reasons why assisted suicide should not be permitted or, if it ever is, under whatever strict conditions [it is] morally appropriate." My remarks on that occasion constitute the substance of this essay, and I acknowledge with thanks the consent of the Dean and Chapter of the Cathedral to have them appear here in this form.

The question that concerned us was physician-assisted suicide; and more precisely, whether physicians and Christians should endorse it. I want to say more than just "no" while giving a less than encyclopedic account of the reasons, which Christians embrace both traditionally and presently, for repudiating suicide itself and medically assisted suicide as a species of that genus. I will also indicate the considerations that might underwrite an exception to the general rule.

My task, therefore, is to offer a moral perspective that displays my commitments as a Christian, and more particularly in this setting my commitments as a Christian who is also an Episcopalian. I am aware that this sounds like (and may even be regarded by some as) a subversive activity! On the other hand, religious diversity and pluralism mark both American society and American medicine; we need to make public and expose to both professional and personal scrutiny the embarrassing particularity that forms and informs our moral judgments. I therefore offer these opinions in the hope that they may confirm and strengthen those who share them, and challenge those who believe and think otherwise to unveil and articulate the fundamental loyalties and commitments that they embrace. I reckon that our greatest enemies in dealing with issues like this one are deception and obfuscation. What we want and need are candor and cognizance, without which the well-being of all of us is in serious jeopardy.

Dr. Smith is a professor at the Divinity School and in the Department of Community and Family Medicine, Duke University, Box 90967, Durham 27710.

Were I to take a text for this essay, I would seriously consider a couple of lines from one of Flannery O'Connor's letters. She wrote to her friend 'A': "The truth does not change according to our ability to stomach it emotionally. A higher paradox confounds emotion as well as reason, and there are long periods in the lives of all of us, and of the saints, when the truth as revealed by faith is hideous, emotionally disturbing, downright repulsive. Witness the dark night of the soul in individual saints. Right now the whole world seems to be going through a dark night of the soul."¹

The Moral Minefield

It has been little more than a year now since Dr. Timothy Quill published his article in the *New England Journal of Medicine* describing how he "made sure that [Diane] knew how to use the barbiturates for sleep, and also that she knew the amount needed to commit suicide."² More than three years ago, an anonymous resident allegedly described how he (or she) had injected Debbie, who "was dying of ovarian cancer," with 20 mg of morphine sulfate and stood by her bedside until she stopped breathing.³ In July of 1992, Derek Humphries' *Final Exit*, a manual on how-to-commit-a-suicide-which-is-painless-efficient-and-not-too-messy, made the *New York Times* best-seller list. Meanwhile, Dr. Jack Kevorkian is still in the news because he has used his 'suicide machine' on at least 13 patients, most, if not all, of whom were not terminally ill. In this country's only referendum to date, voters in Washington state defeated Initiative 119, which would have allowed physicians, in certain circumstances, to honor patient requests for deliberate and intentional death.

These are, of course, only the most recent venturings into this public and professional moral minefield. The most infamous case surely has to be the T4 program instituted by Adolf Hitler and his chief physician, Karl Brandt, and dramatically described by Bert Honolka in *Die Kreuzelschreiber* (referring to the "red cross"—the death sentence affixed to patients' records) and by Gerhard Schmidt in *Selektion in der Heilanstalt* which details how patients in

sanatoria and asylums were chosen for extermination. The first case involving the T4 *Gnadentod* (mercy death) program surely evokes empathy: the parents of a blind, deformed, severely retarded child successfully petitioned Hitler to permit its killing.

Our collective recollection of Nazi atrocities appears to be very selective or very dim, but the ugly resurgence of neo-Nazism ought to revive our memory. Consider that it was barely four years after the doctor's trials at Nuremberg that Dr. Hermann Sander was accused in New Hampshire of killing his patient, Abbie Borroto. Since then there have been sporadic but frequent reports of physicians (and sometimes nurses or paramedical personnel) either killing or assisting their patients to commit suicide.⁴ Until now no physician in the annals of Anglo-American jurisprudence, not even Dr. Kevorkian, has ever been convicted of killing a patient even though several, including Dr. Sander, have confessed that they did actually kill their patients. These physicians have typically been found not guilty on one of two grounds: (1) by reason of temporary insanity, or (2) because the state was unable to prove that the alleged victim was in fact alive at the time of the death-inducing, life-terminating action.

Having said all this, of course, I do not mean to imply that Dr. Quill is a Nazi, or even that his behavior reflects the harshness of a Dr. Brandt or the callous insensitivity of a Dr. Kevorkian. Even so, I do believe that his actions in the case of Diane, however moving and evocative, are not in keeping with either the best traditions of Western medicine or the teachings of the Christian church. I have found Dr. Quill's reflections in his essay, and in his subsequent remarks, both deeply moving and deeply disturbing. I have thought of how difficult it would be to imagine a relationship between physician and patient that modeled better the role for medicine described by Ambroise Paré, the 15th-century French surgeon, in his famous triplet: *Guérir quelquefois, soulager souvent, consoler toujours* (To cure sometimes, to relieve often, to comfort always). And I have thought that anyone reading Dr. Quill's article² could not fail to appreciate the concern and compassion that accompanied the step-by-step description of the care he offered and gave to his patient.

The Moral Traditions of Medicine

All the same, I also found Dr. Quill's essay, and his subsequent remarks, deeply disturbing. At the risk of being perhaps too candid, too blunt, let me come directly to the point. The ancient traditions of Western medicine obligate physicians to preserve (some say "prolong") life and to relieve pain (some versions include "and suffering"). The Hippocratic Oath specifically includes the pledge that "I will give no deadly drug to any, though it be asked of me, nor will I counsel such." Although American physicians do not universally subscribe to the Hippocratic Oath, this ancient

formula is a fundamental part of the moral and professional heritage of Western medicine, and the meaning of the injunction, I daresay, is not only plain enough but is also acknowledged as common sense by the overwhelming majority of both patients and physicians. It means that, although only physicians in our society are authorized to prescribe "poisons," they do so in order to counteract death-dealing and health-threatening diseases, not to cause death. This plain sense reading of the Oath is, obviously, not now universally shared, but the weight of tradition places the burden of proving that it means something else on those who reject it.

It is the other moral maxim, formulated in a time when the capacities of medicine to intervene in the course of our lives were extraordinarily limited, that at present gives us trouble. In those ancient times, relief of pain and prolongation of life were typically complementary and not antagonistic goals. My friends who are doctors and nurses tell me that nowadays, given the armamentarium of modern medicine, it sometimes happens that life can be prolonged only at great personal distress, or that intractable pain can be relieved only at the eventual expense of life itself. Here is an apparently clear and straightforward case of two duties coming into irreconcilable conflict; here two cherished notions about the proper ends of medicine are mutually exclusive.

Another contrariety also deserves mention and our careful attention, and that is the familiar antinomy between physician paternalism and patient autonomy. When professional medical judgment and patient self-determination collide, which ought to be granted priority and given right-of-way? When his patient indicated that she did not wish to be treated for leukemia, Dr. Quill gave two reasons to account for why he agreed to assist in her suicide: (1) because she had the right to choose death; and (2) because of her "desire for independence" and her decision to "stay in control." Her decision to "take her life in the least painful way made perfect sense," that is, he believed that she was rational and "not in despair or overwhelmed in a way that might color her judgment." Furthermore, as Arthur Dyck has put it, "[Dr.] Quill [was] not satisfied to have the physician's role be that of lessening suffering; the physician's role should be extended to include assistance in the elimination of suffering."⁵

Throughout history the moral justification of Western medicine has rested on its commitment not to abandon the sick. But as Dr. Quill and others have made clear, some believe nowadays that when a patient's perceived well-being is compromised by incorrigible pain, and when the prospect is that the patient's condition will progressively deteriorate and when, as he puts it in his essay, the patient is unable "to maintain control of herself and her own dignity during the time remaining to her," when this is the case, the physician's duty is to honor the "patient's right to die with as much control and dignity as possible." The issue now is precisely not a choice between life and death; the issue is what kind of death.

Individual Autonomy or Common Good

In a democratic society, we depend on commitments that we hold in common to ensure reasonable debate; otherwise, we argue from premises that pass each other like ships in the night. So when, as in our time, we have almost no shared vision about the common good, this issue about what kind of death—very like abortion, and capital punishment, and virtually every other significant moral dispute of our time—appears to be rationally irresolvable. Instead of asking how we may work together to achieve our common good and destiny, the preoccupying query of American individualists is rather with how each may secure his or her own privately determined benefit with minimal interference from anybody else.

“... we need to be clear that the issue here is not about withholding or withdrawing so-called life support systems....the issue is whether physicians should help their patients cause their own deaths.”

What makes saying “no”—in this instance, “no” to assisted suicide—so very difficult in the present milieu is that, during the past three or four decades, we have celebrated as never before the claims of individual autonomy. As a result, it has become virtually impossible to draw any lines at all based on predicates of a common good. John Stuart Mill set the stage for our current circumstance when he wrote that “the only purpose for which power can be rightfully exercised over any member of a civilized community, against his will, is to prevent harm to others.”⁶ In very practical terms this means not only that paternalisms of all sorts (and maternalisms as well!) are nowadays more and more taboo, but also that there is increasing resistance to the notion that anybody ought to be able to tell anybody else what they can and cannot, ought and ought not, do.

Daniel Callahan argues cogently, and I think persuasively, that the debate about physician-assisted suicide is not just one more moral dispute in a very long list, but that “it is profoundly emblematic of three important turning points in Western thought. The first is that of the legitimate conditions under which one person can kill another [the second] lies in the meaning and limits of self-determination [and the third] is to be found in the claim being made upon medicine: it should be prepared to make its skills available to individuals to help them achieve their private vision of the good life.”⁷ I think that Callahan is correct, and that these are the issues now before us. What beliefs underlie them? Is this the proper way to frame the choices? How is it that physicians have an obligation to prevent a difficult and painful death

rather than to attend a patient in her dying? Is it arguable that preventing a difficult and painful death ought to be understood on the same terms as the obligation to relieve pain? Can patients or physicians or both make decisions about these matters without regard for implications larger than the immediate individual situation?

The Medicalization of Death

In the case described by Dr. Quill, there is also the matter of falsifying a death certificate in order to avoid “a police investigation and probably the arrival of an ambulance crew for resuscitation and the decision to perform an autopsy” because “the family or I could have been subject to criminal prosecution, and I to professional review, for our roles in support of Diane’s choices.”² My seatmate on a recent flight to Washington, D.C., was a lawyer who informed me that suicide is not a crime and that it therefore cannot be a crime to assist in an act that is itself not a crime. “As long as doctors don’t break the law,” he said, but then his voice trailed off as though I ought to know how to complete his sentence. At the time, I suggested to him that a distinguishing mark of a profession is that it is “above the law” in the sense that it is not defined by the minimalistic requirements of legal morality. Another lawyer has written, however, that: “Although this is an interesting question [why assisted-suicide should be a crime when suicide is not], those who pose it this simply demonstrate the extent to which they do not understand how and why the criminal law concerns itself with solicitation, facilitation, aiding or abetting a crime.”⁸ Whatever the precise legal implications, it should be clear that professional ethical standards are meant (and expected) to be higher than the least sufficient injunctions of the positive law. It is precisely when they are not loftier that third-party intervention is invited.

So we need to be clear that the issue here is not about withholding or withdrawing so-called life support systems. In fact, the issue here is suicide, the medicalization and institutionalization of death, and of physicians abandoning both curing and caring in favor of death. Specifically the issue is whether physicians should help their patients cause their own deaths.

The American Medical Association has formally condemned physician participation in both euthanasia and assisted suicide. The AMA Council on Ethical and Judicial Affairs specifically recommends that: 1) when the patient possesses decision-making capacity, physicians must respect the patient’s decision to forego life-sustaining treatment; 2) there is no ethical distinction between withdrawing and withholding life-sustaining treatment; 3) in fulfilling the obligation to relieve pain and suffering and to respect the autonomy of dying patients in their care, physicians may provide palliative treatment even though it may hasten death; and 4) physicians must not perform euthanasia or participate in assisted suicide.⁹

Formal prohibition, however, even with the articulated reasoning of the AMA, apparently does not satisfy the advocates of physician-assisted suicide. To put the matter starkly, the salient issue for these advocates is with meaningless and purposeless suffering and pain: *What is meaningless and purposeless suffering and pain? How do we perceive it? Because we do not know these things "naturally," as part of the wisdom that we all innately possess, we must ask how do we find out what is "meaningless" and "purposeless?" What are the resources, what are the referents, what in fact controls the meaning of "meaningless" and "purposeless?"*

Christian Reflections on Suffering and Suicide

Christians have to be trained to know where to look for meaning and purpose, and Episcopalians (of whom I am one) have historically answered those questions by appealing to scripture, tradition, and reason, with the clear understanding, as the Lambeth Conference of 1888 put it, that scripture is "the rule and ultimate standard of faith." Space is short, so I will paint the rest of this portrait with a rather broad brush.

These questions go back to the earliest traditions of Western civilization. Pythagoras, Plato, and Aristotle held suicide to be a crime against the community, and Plato even argued that it was tantamount to a crime against God.¹¹ Christians later affirmed this position, but for very different reasons, specifically the Christian belief in God's incarnation as Jesus. According to this doctrine, God took on human flesh as Jesus (John 1:14), gave himself as expiation for the sins of the whole world (1 John 2:1-2), and reconciled the world to himself (Rom. 5-8). Because of this, human life is valuable not because of any human attribution of worth, but because it is invested with God-given value and worth. In baptism, our lives have been given away to God. It is the notion that human life belongs to God that accounts for Christian condemnation of abortion, infanticide, child abuse, war, homicide, and suicide. On these terms, we do not own our lives, nor is the value of human life self-generated. The distinguishing mark of a Christian anthropology is that God, not ourselves, is in control. I believe that it is essential for us to recall these important components of the rhetoric of Christian faith as we undertake to comprehend moral complexities like the one before us. If we believe in God, then what we believe about God—*theology*—ought to make a difference in how we engage in practical reasoning about matters of this sort.

In the classical world of Greece and Rome, suicide was often idealized as a noble form of death, but from the 2nd century onward, Christian teaching has condemned it.¹² The early fathers of the Church—Cyprian, Ambrose, Irenaeus, and Athanasius—all contributed to the Christian doctrine on suicide,¹³ but it was Augustine who succinctly formulated the Christian position and, specifically addressing the "nobility of suicide" argument, named the three grounds on which suicide is denounced: 1) it violates the command-

ment, "Thou shalt not kill;" 2) it precludes any opportunity for repentance; and 3) it is a cowardly act.¹⁴ In the 13th century, St. Thomas gave the conventional Christian position its classical formulation when he wrote that "Suicide is the most fatal of sins, because it cannot be repented of."¹⁵

In his brief but comprehensive account of how the Anglican tradition has treated suicide, David Smith notes that, while the greater weight of the evidence is on the side of denunciation, it is impossible to say that consent can *never* be given to suicide.¹⁶ Although it may, at times be a morally tolerable or even appropriate action, these times are clearly exceptional and not the rule.

To be sure, thoughtful Anglicans like Dean Inge, and maybe John Donne and, at the time that he wrote *Morals and Medicine*, Joseph Fletcher, have defended suicide; and Inge and Fletcher endorsed euthanasia, which Fletcher defined as

"These questions go back to
the earliest traditions of
Western civilization.
Pythagoras, Plato, and Aristotle
held suicide to be a crime
against the community."

the painless killing of a person whose "life has permanently ceased to be either agreeable or useful [to] himself or another."^{11(p 172)} In fact, Fletcher identified 10 moral arguments against suicide and euthanasia, which he then proceeded to dispose of one-by-one en route to endorsing what he called "voluntary euthanasia" and hinting at his favor (he would later be an advocate) for the "involuntary euthanasia for monstrosities at birth and mental defectives, a partly personalistic and partly eugenic position."^{11(p 207)} He also suggested "with fine simplicity" that the Scriptures *authorized* us to commit suicide,^{11(p 178)} conveniently failing to mention Judas Iscariot and neglecting to acknowledge the sheer tragedy and repugnance that instanced the deaths of Ahithophel (II Sam. 15-18), Zimri (I Kings 16:18-19), et al. David Smith's caveat is apropos: "The great moral danger of medical suicide is that it will be egotistical and manipulative, symbolic of an unwillingness to play the role of dependent when it falls to our turn. Theologically it may 'be the expression of a refusal to trust in God, an embracing of death for its own sake, a form of self-justification, a desertion to the enemy.'"^{16(p 64)}

This judicious sensibility is a familiar refrain in the writings of both Richard Hooker¹⁷ and Jeremy Taylor,¹⁸ who echo the conviction that no one can claim a right to death on the ground that their life is their own. Indeed, Taylor made the point explicit by asserting that human life belongs to God and that persons should not presume to choose the cause of their death. The core thread, says David Smith, "is the idea that 'medically indicated' suicide represents a desertion or

betrayal of others and an impatient assertion of the self against conditions of finitude that are part of embodied existence. From the Anglican viewpoint the individualism that voluntary euthanasia represents is a mistaken interpretation of reality. Rather than voluntary euthanasia, Anglicanism should support organizations like the Samaritans and hospices."¹⁶ (p 66)

I think that David Smith is precisely on target in these observations. I agree with him that it is impossible to say that an action that causes one's death can never be consented to, because I believe that temporal life is not the *summum bonum* for Christians. Precisely because our life belongs to God, we may be forbidden to will its continuation at all costs. We may, in fact, be bidden to expose our lives to various kinds of risk and danger, as Jesus surely did in going up to Jerusalem and to his eventual death. But he did so in affirmation of the necessity of this event. If I am correct in this formulation, as I believe I am, then the urgent question is "What are the risks and dangers for which we should hazard our lives?"

We have some clues to those risks and dangers in the careful distinctions we make, for example, between suicide and heroism. These distinctions already suggest that a hero's death does not renounce life but affirms it, whereas a suicide's death (as Dr. Quill has described Diane's decision, and despite his protestations to the contrary) despairs of life and acts with final sovereignty "to take one's life." This means, in part, that in the exceptional case there may be moral warrants for an appropriate self-sacrifice of one's own life, but it also means that these moral warrants do not extend to the permissibility, much less the duty, to sacrifice the life of another.

Choosing Our Rut

What is urgently, perhaps even desperately, wanted now is serious and sustained conversation about these matters. Daniel Callahan put it right when he wrote that "Euthanasia is not a private matter of self-determination. It is an act that requires two people to make it possible, and a complicit society to make it acceptable."¹⁷ (p 53)

My grandfather John O'Donnell's house in Mississippi sat beside the washboard road that led from Overt to Laurel. Laurel was the county seat of the Free State of Jones, and that old road bore lots of traffic. When it rained, the road was badly rutted because only a thin layer of gravel covered the sand and clay base. As a matter of fact, it was so badly rutted that it was dangerous to drive, and cars routinely wound up in ditches along the way. People wanting directions to Laurel frequently stopped by Papa's house for instruction, and his advice, particularly after a heavy rain, was always the same: "Choose your rut well, because you'll be in it for the next 22 miles." With a word change here and there, that seems like advice well worth taking as we engage the moral gravity of matters like physician-assisted suicide and euthanasia. □

References

- 1 Fitzgerald S (ed). Letters of Flannery O'Connor: The Habit of Being. New York: Vintage Books, 1980, p 100.
- 2 Quill TE. Death and dignity: a case of individualized decision making. N Engl J Med 1991; 324:693-4.
- 3 Anonymous. It's over, Debbie. JAMA 1988;259:272.
- 4 Smith HL. Ethics and the New Medicine. Nashville: Abingdon Press, 1970. pp 135ff.
- 5 Dyck A. Physician-assisted suicide: is it ethical? Trends in Health Care, Law & Ethics 1992;7:20.
- 6 Mill JS. On Liberty. London: John W. Parker and Son, 1859, pp 23-4.
- 7 Callahan D. When self-determination runs amok. Hastings Center Report 1992; 22:52.
- 8 Scofield GR. Physician-assisted suicide: part of the problem or part of the solution? Trends in Health Care, Law & Ethics 1992;7:16.
- 9 Council on Ethical and Judicial Affairs of the American Medical Association. Decisions near the end of life. JAMA (22-29 April 1992), 267/16:2229-2233.
- 10 The Book of Common Prayer, p 877.
- 11 Plato, *Laws*, ix, 873 C; Aristotle, *Politics*, 1335 b, 19ff.; for Pythagoras, cf. Cicero, *Cato Major* 20 (72 sq.) and *De Officiis*, i.31 (112). Cited in Fletcher J. *Morals and Medicine*. Princeton: Princeton University Press, 1954, p 177.
- 12 Amundsen DW, Ferngren GB. "The Early Christian Tradition," in Numbers RL, Amundsen DW, eds.: *Caring and Curing: Health and Medicine in the Western Religious Traditions*. New York: Macmillan Publishing Company, 1986, p 50ff.
- 13 Cf. Cyprian, *De charitate inter fratres* (C.S.E.L. 4, p. 737); Ambrose, *In Psalmum enarratio*, XXXVI (P.L. 14, p. 975); Irenaeus, *Advers. Haereses*, XXIII (P.G. 18, p 729); Athanasius, *De Operibus Charitatis* (P.G. 18, p 880).
- 14 Cf. Augustine. *City of God*, Book I, chaps. XV-XXVI, specifically XIX. 4.
- 15 Aquinas T. *Summa Theologica*, II-II, q. 64, art. 5.
- 16 Smith DH. Health and Medicine in the Anglican Tradition. New York: Crossroads, 1986, p 63 ff.
- 17 Hooker R. *Laws of Ecclesiastical Polity*. Oxford: Keble, 1874, V.46.2.
- 18 Taylor J. *Holy Living and Holy Dying*. New York: Oxford University Press, 1988, IV, i and III, ix.

PHYSICIANS



We are announcing opportunities for you to serve your country as an Air Force Reserve physician/officer. You can make new professional associations, obtain CME credit and help support the Air Force mission. For those who qualify, retirement credit can be obtained as well as low cost life insurance. One weekend a month plus two weeks a year or less can bring you pride and satisfaction in serving your country.

CALL: Or Fill Out Coupon and Mail Today!

To: MGST Linda Landrum
2400 RRMS/RSB-1
Bldg 1000, Room 112
Charleston AFB, SC 29404-6004

Name

Address

City State Zip

Phone Prior Service? Yes ☐ No ☐

Medical Specialty Date of Birth

AIR FORCE RESERVE

25-301-0009

A GREAT WAY TO SERVE

Beyond the No-Code Order

C. Glenn Pickard, Jr., M.D.

"There is nothing more we can do for your mother. She is terminally ill. Her cancer has progressed despite chemotherapy. We do need to know, however, if she has ever expressed a preference for or against heroic life support measures. Does she, for example, have a living will?"

"No, she doesn't have a living will, but she always said she didn't want to be connected up to machines or have tubes in her nose or anything like that."

"Then would you think that if her heart stops, she would not want us to attempt to restart it?"

"You mean make her a 'no code'?"

"Yes. But in addition there are several other matters we need for you to consider: Do you want us to use intravenous fluids or tube feeding? What about a ventilator (breathing machine) or kidney dialysis? What about surgery? Should we do further diagnostic studies if new problems arise?"

"Doctor, I don't understand why you're asking me all these questions. Didn't you say there was nothing more you could do? If you can do all these things you're asking me about, maybe you should, if they'll help my mother."

How many times each day are scenarios like this repeated across our state and nation? It is my thesis that this model for discussing care of the terminally or incurably ill is tragically flawed. Careful examination will reveal its weaknesses (and suggest an alternative approach). Let's first examine the basic approach demonstrated in our example—we began the discussion by saying "There is nothing more we can do." This immediately sets up the idea of abandonment. We then presented to the individual (or family) a list of medical interventions for them to accept or reject. Now those of us who have critically evaluated care of the terminally or incurably ill realize that these interventions often only prolong dying and lead to no positive outcome. We therefore hope that some or all of the list of possible interventions will be rejected, because this will enable us to provide more compassionate and sensitive care to the dying patient. However, the tragic flaw is that we do not explain it this way to families. We do not say what we want to do.

Having initially been told that there is nothing more to be done, and having then considered and rejected a list of offered medical interventions (things they might do), families are left feeling that they have abandoned their dying family member, consigning him or her to a regimen of "no care." Most often, the conversation ends when the list of

possible "heroic" interventions has been covered. There is little or no discussion about the kind of care that we will provide and the interventions that we will use.

"No Code" Does Not Mean "No Care"

Why has such an approach evolved and become the standard of care? Let's look again at the statement "There is nothing more we can do." Our intent is to affirm the gravity of the situation and to indicate that the practical limits of diagnostic and therapeutic medicine have been reached. We want to convey that we "have run out of miracles" and that meaningful recovery to a desirable quality of life is no longer possible. However, the words we use, "there is nothing more we can do" are easily misinterpreted as "we plan to offer no more care." And why do we insist on presenting a list of possible interventions for the family to accept or reject in a prospective theoretical construct? Nowhere else in medicine is this approach used. Possible events are conjectured ("What if her heart stops?") and someone other than the patient is asked to accept or reject the treatment for a theoretical future event that may or may not occur. In all other instances (except when patients make their own living wills), therapeutic options are presented in the context of an actual clinical problem, and the proposed therapy is presented in a meaningful context because there is a defined problem, a proposed course of action, and identifiable benefits and risks.

Dr. Pickard chairs the North Carolina Medical Society's Bioethics Committee. He is an internist at North Carolina Memorial Hospital, University of North Carolina, 5039 Old Clinic Bldg., CB #7110, Chapel Hill 27599.

I believe that our current pattern evolved in the context of considerations relevant to cardiopulmonary arrest. Once the technology of cardiopulmonary resuscitation (CPR) became available, it was apparent that successful resuscitation demanded intervention without waiting for consultation with the patient or a surrogate decision-maker—the patient was most often unconscious and the surrogate decision-maker could not be reached and consulted in a timely manner. Thus the patient receives CPR at the time of arrest unless there is an advance statement that resuscitation is not desired in the event of arrest. In this way, we introduced the model of consulting the patient in advance about a hypothetical future event that might occur. I can understand the rationale in the case of CPR, but I see little or no justification for extending this model to other interventions.

What Should We Do?

How should these situations be handled? First, we must consciously abandon the statement “There is nothing more we can do.” Regardless of our intent, it carries the unmistakable message that we will provide no further care.

Second, we must revisit the need to establish code status. Let’s carefully examine the true meaning of cardiac arrest. It is the unanticipated or unexpected cessation of the heartbeat in a patient who otherwise could be restored to an acceptable quality of life. Unfortunately our common clinical definition of death is also the cessation of heartbeat. However, the circumstances should enable us to distinguish death from cardiac arrest. Cessation of heartbeat in a terminally or incurably ill patient is *not* cardiac arrest—it is death, the natural end of a terminal illness. We should not blindly apply CPR to dead patients. Once we can make this distinction, then the need to obtain permission to write a no-code order disappears. We must inform the patient or the surrogate decision-maker (or both) about the incurable or terminal illness, explain that death is an expected outcome and that, at the time of death, there is no effective treatment. The option of CPR need not be offered. A note indicating that death is an expected outcome should be written in the chart and an appropriate system developed for notifying staff not to initiate CPR at the time of death.

As previously discussed, the ritual presentation of a list of possible heroic measures is inappropriate and ill-advised. Instead, we must learn to present an active plan of care emphasizing those things we *are* going to do. We must identify measures that will ensure the patient’s comfort, and present our plan to the patient (if possible) and the family or surrogate decision-maker. Each clinical situation will be

different, but certain basic issues need to be addressed, remembering always that our goals have shifted from cure and rehabilitation to care and comfort.

Physical comfort. In all cases the physical comfort of the patient must be paramount. Our primary goal should be to let patients find their own level of comfort, realizing that even well-intended attempts to increase mobility and independence may be misguided. If the patient is able to communicate, then his or her wishes should be acknowledged and followed. For example, a wish to remain in bed, clearly contraindicated in a curative or rehabilitative mode, should be allowed. The problem is to ensure continued comfort at bedrest and to avoid the hazards of pressure sores or disuse contractures. Careful positioning and frequent repositioning, the use of special beds or mattresses, and similar measures can help avoid these problems. Similarly, all other questions regarding level of activity must be geared to the patient’s wishes. The situation is more difficult when the patient cannot communicate. We must then use our own best judgment to develop a plan that takes into account the patient’s present abilities and previous lifestyle and preferences.

“...the circumstances should enable us to distinguish death from cardiac arrest. Cessation of heartbeat in a terminally or incurably ill patient is *not* cardiac arrest—it is death...”

Cleanliness. Incontinence is often a major problem in the care of the terminally ill patient. We need to be sure that the patient will be kept clean and dry. Perhaps more important, we need to demonstrate our careful attention to this potential problem.

Hydration and feeding. No other issues present as much difficulty as do hydration and feeding in the patient who is unable to swallow. First there is the family’s fear that the patient will suffer from dehydration and starvation. This is indeed a complex and complicated issue, but I offer a simplified explanation of my approach. I first reaffirm that the patient is terminally ill and that meaningful recovery is impossible. Therefore, food and fluid have become comfort issues. It is no longer necessary or appropriate to artificially feed or hydrate the patient because they cannot regain their health, strength, or energy. Instead, we must focus on making the patient comfortable in feeding and hydration.

Turning first to feeding, I point out that the sensation of hunger is the only really objectionable symptom of fasting. Symptoms such as weakness, lassitude, mental clouding, etc., that would be experienced by a conscious, alert patient are not noticeable or objectionable to the terminally ill patient. In fact, hunger is rarely an issue. Most patients actually refuse to eat even if able to swallow. In those rare instances where the patient is unable to swallow and still expresses hunger, then allowing them the gustatory sensation of food in the mouth without swallowing will usually assuage any sensation of hunger.

Turning to the issue of hydration, I begin by analyzing the symptoms of dehydration: only thirst is unpleasant. Once again, the symptoms of weakness, lassitude, mental clouding, somnolence, and even coma are not unpleasant. Therefore, I focus only on relieving thirst. Fortunately, as shown experimentally and by clinical practice, one of the best ways to decrease or eliminate thirst is by buccal stimulation. Glycerine swabs, a moist washcloth, ice chips, or sips of water instilled into the mouth but not swallowed will alleviate the sensation of thirst. Such buccal stimulation may need to be performed quite frequently as thirst recurs, but thirst can always be relieved without restoring hydration. Conversely, the "token IV," run at a subtherapeutic level to reassure the patient or family that fluids are being given, does nothing to alleviate thirst. Nothing is worse than to encounter a patient who has such an IV running, but who has had no attention given to buccal stimulation.

Pain control. Pain control is often a major issue in the terminally ill. With our modern array of pain-killing medications and the means for delivering them effectively (such as by self-administered subcutaneous infusion), it is a rare patient for whom adequate pain control is not possible. Nonetheless, I always pay careful attention to pain relief. The most common error I find is the misguided fear that the patient will become addicted or we will "run out" of effective medicines before the patient dies. As a result, we

often lag "behind" the patient's need in terms of the medication chosen or the route of administration used.

Freedom from nausea or vomiting. When this is an issue, patients and families can be reassured that effective drugs are available to control nausea and vomiting. Often some dulling of the sensorium is an unavoidable consequence of effective medication, but this is not an objectionable trade-off.

Overall, I believe that one of the greatest problems in our care system is the paucity of items that we can readily list as contributing to the comfort of the terminally ill patient. Often the thing that is most needed—simple human presence—is neither offered nor provided. Just going into the patient's room and speaking to the patient and family reassures them that they have not been abandoned. Done consistently, this simple act can provide immeasurable solace. Beyond this, the act of touching the patient in comfortable, reassuring ways can add greatly to comfort. Such behaviors are clearly "low tech" and may not be appreciated by modern health professionals accustomed to dramatic therapeutic interventions. However, more attention to these simple matters will lengthen the list of things that we can offer to the terminally ill patient. It will let us put to rest, once and for all, the statement "There is nothing more we can do" and move beyond the no-code order. □

ACCUSCRIBE, INC.

5 North Lafayette Street
P.O. Box 1511
Shelby, North Carolina 28151-1511

MEDICAL TRANSCRIPTION FOR PHYSICIANS'
OFFICES AND HOSPITALS

WE OFFER:

- ** Professional quality transcription on your letterhead or forms that meet your specifications
- ** Lanier Telestaffing capability
- ** Dictation may also be done over toll-free telephone line via Digital Analog Communication System
- ** Direct-line printing capability
- ** Service available 24 hours a day
- ** Confidentiality of records guaranteed

FOR MORE INFORMATION CALL:
(704) 480-6854

It's your choice:

**4 hours at 4 auto dealers
haggling over \$400**

or

**4 hours on the links with
your favorite foursome.**

That's right. While you're attending to more pressing issues, Auto Brokers International can locate the best deal on the car of your choice. We shop, we haggle, we negotiate. **And, if we can't save you time and money, we don't get paid. Period.**

787-1098

Long distance
1-800-645-6413

**AUTO BROKERS
INTERNATIONAL, INC.**

3301 Woman's Club Drive, Suite 127
Raleigh, North Carolina 27612
(919) 787-1098 FAX 787-1098



An Exercise in Futility

Are We Bidden To "Treat" the Untreatable?

Rosemarie Tong, Ph.D.

For quite some time now, I have followed the debate about "futile" medical treatment. Is it or is it not morally permissible—indeed, morally required—for physicians to withhold or withdraw aggressive forms of medical treatment when they believe that such treatment is futile? One would think so. As physicians Truog, Brett, and Frader have observed, the concept of futility probably descends from Hippocrates, who allegedly advised physicians not to treat patients "overmastered by their diseases."¹ Much more recently, physicians have been assured that they need not provide aggressive treatment to severely imperiled newborns when that treatment is "virtually futile;"² and even been advised that, should they deem CPR futile, they need not necessarily consult the patient or the patient's surrogates before entering a "Do Not Resuscitate" order into the medical chart.³

The issue of futile medical treatment requires careful consideration because many health care providers are increasingly convinced that, although patients have a nearly absolute right to *refuse* treatment, they may not have a right to *demand* treatment. In fact, it is already agreed that patients have no right to demand so-called "medically inappropriate" or "non-beneficial" treatment.⁴ They cannot insist that "physicians injure them (for example, by mutilation), or provide plausible but inappropriate therapies (for example, amphetamines for weight reduction) or therapies that have no value (such as laetrile for cancer)."⁵ Now if these were the only kinds of futile treatment, the public would simply applaud physicians' wisdom and leave it at that. But physicians designate a number of treatments as futile, including aggressive treatment for patients with symptoms of advanced AIDS,⁶ or aggressive treatment for patients with terminal cancer or in a persistent vegetative state (PVS). The crucial question is whether it is as "medically inappropriate" or "non-beneficial" to prolong dying patients' lives as it is to prescribe inefficacious therapies for cancer or other serious diseases.

The Case of Mrs. Wanglie

To date, the most widely-publicized "futility" case has been that of Mrs. Helga Wanglie. Unlike situations where families assert their right to *stop* treatment of a patient in a PVS, Mrs. Wanglie's family asserted the right to *continue* treatment against her doctors' protest that such treatment served only to sustain Mrs. Wanglie's life for life's sake.

Mrs. Wanglie fell and broke her hip in December 1989, at the age of 86. She was treated at North Memorial Hospital, suffered respiratory failure, and was transferred to Hennepin County Medical Center (HCMC) on January 1, 1990. She was cognizant and aware of her family, but when moved to Bethesda Lutheran Hospital on May 7, 1990, Mrs. Wanglie had a heart attack and suffered brain damage. Thereafter she was permanently unconscious. Moved back to HCMC on May 31, 1990, she remained dependent on a respirator and tube feedings and was eventually diagnosed as being in a PVS. Her physicians said that further aggressive treatment would not benefit her because neither the respirator nor tube feedings could restore normal bodily functions or enable her to recognize the simple fact that she was alive.

The family, on the other hand, insisted that Mrs. Wanglie would benefit from further aggressive treatment. Her religious and moral convictions made life intrinsically valuable and worth living under any and all circumstances. *Medical* benefits are not the only reasons that patients seek physicians' assistance, but it is not clear whether Mrs. Wanglie's physicians were using the term "benefit" in the same general or non-medical way that her family was. If so, then they were making a personal quality-of-life judgment, one best left to patients and their families. In contrast, if they were using the term to signify *medically* beneficial treatment, then they were making a professional judgment. In any case, it would seem that patients are not simply interested in whether physicians judge a certain treatment to be *medically* beneficial or not, but in whether, be it of medical benefit or not, it is of *general* benefit to them. Patients have other interests than the maintenance or promotion of their health.⁷

Faced with this family opposition, the HCMC medical staff asked the Hennepin County District Court to appoint an independent conservator to determine whether further aggressive treatment of Mrs. Wanglie was appropriate. The court decided that the best person to identify and articulate

Dr. Tong is the Thatcher Professor in Philosophy and Medical Humanities at Davidson College, P.O. Box 1719, Davidson 28036.

Mrs. Wanglie's needs and interests was "her husband of 53 years and that he should therefore be appointed as her conservator."⁸ Mrs. Wanglie died a few days after this decision, her ventilator and tubes still in place.

Because the Wanglie case ended as it did, no court has yet ruled whether, in the presence of clear and convincing evidence that a PVS patient wants life-sustaining treatment, physicians may nonetheless withhold or withdraw treatment on the grounds that it is medically inappropriate or non-beneficial. In this article I explore precisely what counts as "medically inappropriate" and as "non-beneficial" treatment. Are these two phrases simply synonyms or do they convey important differences about the kind of treatment physicians wish to withhold or withdraw from patients? I also examine what treatments, if any, physicians have a responsibility to offer or provide patients. Even if patients have no general right to all medical treatments, they may nonetheless have a general right to some medical treatments. Moreover, once a patient enters a relationship with a physician, that relationship generates a set of patient rights and physician responsibilities specific to that relationship.

Futile Care; Medically Inappropriate Care; Non-Beneficial Care

It is significant that Helga Wanglie's physicians described their care of her not as futile but instead as medically inappropriate and non-beneficial. The word "futile" has a defeatist connotation,⁹ and no competent and compassionate physician wishes to convey the impression of giving up hope or abandoning a patient. Competent and compassionate physicians do wish to convey the sense that they refuse to provide a treatment because it was in some way wrong to give it.

What does it mean to say that treatment is medically inappropriate? As far as I can determine, physicians use this term to describe treatments that fail to serve any of the goals of medicine or serve only the goal of prolonging life. Jonsen, Siegler, and Winslade observe that the encounter between physician and patient has many appropriate goals including the following:

- 1 Restoration of health
- 2 Relief of symptoms (including physical distress and psychological suffering)
- 3 Restoration of function or maintenance of compromised function
- 4 Saving or prolonging of life
- 5 Education and counseling of patients regarding their condition and its prognosis
- 6 Avoiding harm to the patient in the course of care.¹⁰

Although the medical community supposedly believes that no "general ranking" of these goals is possible, Jonsen and his colleagues say there is a growing consensus "that attainment of the single goal of prolonging life when progressive and critical deterioration of major systems seems to be

leading to inevitable death is not an independent and overriding goal of medicine."¹¹

If prolonging life is not an "independent" and "overriding" goal of medicine, then it is probably only one of its *dependent* and *subsidiary* goals. Arguably, medicine aims to prolong life to buy time during which a patient may be restored to some semblance of health. In a provocative essay on the end of medicine, bioethicist-physician Leon Kass claims that among the false goals of medicine (for example, happiness, social adjustment or obedience, the alteration of human nature) is the prolongation of life merely as the postponement of death. He claims that if medicine has a single goal it is not the prolongation of life, but the pursuit of health or "the well-working of the organism as a whole."¹² If preventing death rather than maintaining health was the *raison d'être* of medicine, says Kass, then "the medical ideal, ever more closely to be approximated, must be bodily immortality."¹³ Without invoking the term "futility" or the phrase "medically inappropriate," Kass claims that there comes a time when "a sensible physician will acknowledge that there is no longer any realizable therapeutic or medical goal, and will not take the mere preservation of life as his objective."¹⁴ He exhorts physicians to "...keep their eye on their main business, restoring and correcting what can be corrected and restored, always acknowledging that death will and must come, that health is a mortal good, and that as embodied beings we are fragile beings that must snap sooner or later, medicine or no medicine."¹⁵

Most physicians do not want to prolong life for life's sake, but physicians do not determine the ends of medicine by themselves. Those are set by physicians *and* society. The benefits physicians offer must be appreciated as benefits by the patients they serve. Most people agree that it makes no sense to prolong biological life without conscious awareness, or with so little conscious awareness as to preclude meaningful relationships with other people. Nonetheless, some people insist that life on any terms, with or without conscious awareness, is intrinsically valuable, and that it is medicine's task to preserve all vestiges of life.¹⁶

Not only some patients but some physicians believe that all life—even vegetative life—is always valuable and should be maintained for as long as possible. To be sure, Dr. Steven H. Miles and his colleagues maintained that the absence of physicians willing to undertake Helga Wanglie's case represented "a medical consensus that respirator support is inappropriate in such a case."¹⁷ Yet other physicians may have been reluctant to assume Mrs. Wanglie's care, possibly from fear of controversy more than from a conviction that prolonging life for life's sake is "inappropriate."

There is, as yet, no *official* consensus among physicians that it is inappropriate to aggressively treat PVS patients or that prolonging life is not an "independent" and "overriding" goal of medicine, and such a consensus may be long in coming. Even if physicians should reach consensus and refuse to aggressively treat PVS patients (and perhaps some other categories of patients), society might decide to think twice about letting physicians' judgments determine pa-

tients' destinies. As bioethicists Robert Veatch and Carol Mason Spicer have observed, society already gives physicians monopoly control over the means necessary to prolong life. It may be "unreasonable" and even "foolish" to give them a unilateral say over *when* these means should be used on patients' behalf.¹⁸

Harmful Treatment and Torture

Significantly, even without consensus about whether life prolongation is in itself a proper goal of medicine, everyone agrees that physicians should not harm patients more than they benefit them. Commentator after commentator has pointed to the case of Baby L as an example of *harmful* care. Baby L was born the victim of fetal hydronephrosis and oligohydramnios. Blind, deaf, quadriplegic, and severely mentally retarded, Baby L suffered recurrent pneumonia and four cardiopulmonary arrests. Baby L's parents insisted that the infant's life be prolonged by mechanical ventilation and cardiovascular support. The medical staff claimed that such treatment was "futile" and "inhumane," and they refused to continue to treat Baby L. However, they willingly surrendered the infant over to a physician prepared to honor the parents' request to do "everything."¹⁹ If the medical staff *truly* believed that aggressive treatment was medically inappropriate—pain being inflicted for little more than pain's sake²⁰—they should not have turned Baby L over to a physician prepared to pursue just such a goal. Since infants are not aware of life's possible ends or aims, for them the experience of pain is simply the experience of pain. There is no redeeming thought that "if I can only get through this, I will be better;" no conviction that "even though this hurts, the pain is worth it to me, if I can just see my loved ones one more time." If futile treatment means torture, then clearly physicians are not only not obligated but, I would maintain, not permitted to provide it. Torture is definitely not an end of medicine.

Some people may think of aggressive treatment of PVS patients as torturous. But this is not the case because, since PVS patients have no conscious awareness, they do not feel pain. They cannot be harmed in the way that the Baby Ls of this world can be harmed, although it can be argued that they are harmed inasmuch as aggressive treatment represents a final assault on their dignity as persons. Most people are horrified by the thought of shriveling up into a ball of twisted flesh, more animal than human. But some people view death as a fate even worse than this, or they view their slow disintegration as a God-mandated fate to which they must obediently submit. Arguably, these people are benefited rather than harmed by life-prolonging treatment.

Non-Beneficial Care

In contrast to medically inappropriate care, *non-beneficial* care simply offers no benefit. Antibiotics may not harm a

patient with a simple cold, but neither will they cure the affliction. Thus, referring to treatment as "futile" in the sense of "non-beneficial," refers to treatment that is inefficacious or that leads to a physiological dead end.²¹ As examples, Dr. Stuart Younger raises the following questions: "Will a given vasopressor actually raise or maintain the patient's blood pressure? Will careful attention to fluid management be successful in maintaining electrolyte balance? Or, in the case of resuscitation, will CPR reestablish spontaneous heartbeat?"²² If treatments are not effective means to the ends they are supposed to serve, they are inefficacious, non-beneficial, and futile.

Quantitative Futility

Here we are discussing the so-called "quantitative" aspects of futility. Physicians disagree about how low the probability of success must be before an intervention is judged futile, but Dr. Lawrence Schneiderman and his colleagues maintain that physicians may draw safe conclusions about the probability of success of a proposed therapy based on their experience of a previous "100 cases" of a particular medical condition. The "100 cases" need not come from the physician's own practice, but could come from the pooled experience of physicians in the geographical region or in the entire United States.²³ Generalists value the judgments of specialists because, as a rule, specialists are better able to group together the "futility characteristics" of a particular disease. Using such an analysis, any therapy that has less than a 1% chance of success would be quantitatively futile and would not have to be offered by the physician even if a patient wanted it.

Qualitative Futility and the Burden of Treatment

The term "non-beneficial" is confusing because some physicians use it to refer not only to treatment that is highly or altogether inefficacious, but also to treatment that provides little or no objective benefit to patients relative to the total risks, harms, or burdens it carries. For many years, bioethicists and clinicians struggled to define *extraordinary* medical treatments as extraordinary, since most medical treatments are "artificial" in the sense that they are not available in the state of nature.²⁴ Similarly, it seemed incorrect to classify any and all exceptional treatments as extraordinary, since today's medical "exception"—its miracle—is tomorrow's medical rule (in 1960 chronic hemodialysis was extraordinary, but today it is very ordinary). For these semantic reasons, bioethicists and clinicians came to prefer the term "burdensome" to "extraordinary." "Burdensome treatment" means that "all medicine, treatments, and operations, which cannot be obtained or used without excessive expense, pain or other inconvenience for the patient or for

others, or which, if used, would not offer a reasonable hope of benefit to the patient."²⁵

Schneiderman and his colleagues say that any treatment is "qualitatively" futile, non-beneficial, burdensome (choose your favorite descriptor), if it merely preserves permanent unconsciousness or fails to end total dependence on intensive medical care. In other words, even if keeping a PVS patient on a respirator is not *quantitatively* futile because it does prolong life, it is *qualitatively* futile because a permanently unconscious person cannot benefit from treatment whose benefits he or she cannot appreciate.²⁶ Unless I know I am being benefited, I cannot be benefited.

Interestingly, an analogous argument has been made about harm: that persons cannot be harmed unless they know that they are being harmed. Yet, as philosopher Joel Feinberg has observed, although we cannot be hurt without knowing that we are hurt, we can be harmed without knowing that we have been harmed. Feinberg gives the example of an unsuspecting husband whose wife is cheating on him. What the cuckolded husband doesn't know isn't *hurting* him, but it certainly is *harming* him:

"An undetected adultery damages one of the victim's 'interests in domestic relations,' just as an unknown libelous publication can damage his interest in a good reputation, or an undetected trespass on his land can damage his interest in 'the exclusive enjoyment and control' of that land."²⁷

If Feinberg is correct, it follows that, although patients cannot be made to feel *comforted* without knowing that they have been comforted, they can be *benefited* without knowing that they have been benefited. Were this not the case, people would not write advance care directives that specify treatments to be withheld or withdrawn (or not withheld or withdrawn).²⁸ Although they won't know that their wishes are being honored, aren't they nonetheless benefited by the fact that their wishes are, in fact, being honored?

Futility and the Physician-Patient Relationship

One major problem with the easy invocation of futility, is that it erodes the physician-patient relationship. By simply proclaiming certain treatments as futile, physicians circumvent potential conflicts with their patients because "futile" treatments do not need discussion. The physician, through silence, silences the patient. Yet as bioethicist-lawyer Susan M. Wolf points out, silence exacerbates, rather than solves, the dilemma of health care decisions:

"Physician strategies to prevent conflict have the unfortunate effect...of arrogating to the doctor exclusive control over information and decisions that should be shared with the patient. Keeping from the patient information about the range of options, including alternatives to the course the physician may prefer, will indeed avoid the occasion for

conflict. But the cost is that the patient will be deprived of information she should have and be closed out of a decision that she has every right to make."²⁹

In feminist terms, we might assert that the masculine preference for abstract justice—for determining whether a patient has a *right* to demand futile treatment—may cost both physician and patient an extremely valuable opportunity to forge a caring relationship.

At stake in the futility debate, therefore, is the character of the physician-patient relationship. We may find in the conflict of patients and physicians who "disagree about the goals of therapy because they value outcomes...differently,"³⁰ a version of the paternalism versus autonomy debate, or the scientific expertise versus democratic participation debate. As long as we attempt to resolve this debate adversarially we fail to establish the kind of cooperative physician-patient relationships we presumably value.

When the debate comes down to a struggle between scientific expertise and democratic participation, physicians claim that they are better judges of what benefits patients than patients are. For practical purposes, this is true—the typical patient does not know the best treatment for his or her disease. Nor does he or she know how risky treatments are. Presumably, the physician does. Thus, as Tomlinson and Brody note:

"...A cardiac surgeon cannot be obligated to honor an angina patient's demand for bypass surgery when the surgeon has determined that the patient is a poor surgical risk who is more likely to die on the operating table than to have his angina relieved. To assert that the physician should not have this discretion is to deny that the medical profession should have any power to interpret and apply its own defining values, in this case the duty to do more good than harm to patients."³¹

In contrast, when the futility debate takes the form of a struggle between paternalism and autonomy, physicians assert not only the legitimate authority of their medical expertise, but also the supposed superiority of their *non-medical* judgment as to what kind of life is worth living. Now it may be the case, as Jonsen and his colleagues have argued, that there are "wide and objective criteria" by which it can be decided that a patient's quality of life is so low that physicians are not required to maintain it,³² but it seems to me that society ordinarily prefers to make quality of life determinations on the basis of narrow and subjective criteria. A recent conference brought together a substantial number of the family members who were involved in the most widely-publicized "right-to-die" cases. All of them stressed the abysmal quality of life of their loved ones before they terminated treatment; but all also stressed how "personal" such a decision is and how they would support another's decision not to terminate treatment under the very same circumstances that caused them to do so.³³

A Cautionary Note

Since objective futility determinations are hard to separate from subjective quality of life determinations, it seems wise for physicians to heed Daniel Callahan's advice about not terminating life-prolonging treatment even in cases of PVS patients like Helga Wanglie. Comments Callahan:

"...The debate on the meaning of 'futility' is still in its infancy: We have no clear sense of public values on these matters, no good figures on costs, no clear criteria for cost-benefit calculations, and no political process to allow physicians and lay people together to develop appropriate standards. There is no literature of any importance on the extent to which doctors should feel free to refuse to provide treatment they believe to be useless in the absence of common public standards for such refusal. Since it is possible—probably likely—that some will want to extend the notion of futility well beyond the persistent vegetative state to cases of severe dementia and multi-organ failure, it is important that this discussion proceed carefully."³⁴

Although Callahan is correct that consensus will not be achieved overnight, I believe that it is achievable in one form or another. For instance, there is no present medical consensus about the standard of care for PVS patients, but such a consensus is growing. Whether the public will react favorably to an announcement that physicians are not obligated to aggressively treat PVS patients is, of course, not certain. However, the public needs to be reminded that such a decision would be similar to a decision to not aggressively treat newborns whose weight falls below a certain number of grams. Since most U.S. physicians prefer to make exceptions to rules, however, they would probably prefer a standard of care that *permits*, rather than *requires* them not to treat PVS patients—or extremely low birth-weight babies.

Legal Solutions

Possibly a better way to proceed at least with respect to PVS patients is through legislation. In most states, whole brain death—the loss of both “lower” brain stem functions (respiration, the response of pupils to light, and the gag reflex) and “higher” cerebral brain functions (consciousness and the control of voluntary movements)—is the accepted medical and legal definition of death. If states could be persuaded that persons are dead when their higher brain dies, then PVS patients, who possess only “lower” brain stem function, could be declared dead and require no treatment. The advantage of this approach is that it allows the public to express just how “alive” it thinks PVS patients are. The quality of life decision is transferred from the hands of the medical community to the public's. The disadvantage is “that the persistent vegetative state is much trickier to diagnose than whole brain death; the criteria are less certain

than for whole brain death and there are no simple, conclusive laboratory tests to confirm the diagnosis.”³⁵

Scarcity, Justice, and Rationing

We could argue that, even if the lives of PVS patients and others whose quality of life is minimal by “wide and objective” criteria are extraordinarily valuable to the patients themselves, justice sometimes demands that their values be weighed against the value of other people's lives—especially those who have conscious autonomy. As the cost of medical care continues to increase and, as more and more people find that they have no access to affordable and good health care, justice may demand that we ration health care. We will need to consider what bioethicist Haavi Morreim describes as commodity scarcity on the one hand and fiscal scarcity on the other.³⁶ When a PVS patient occupies an intensive care unit bed and a person who can be brought back to conscious autonomy desperately needs that bed, then “squatter's rights” do not apply. Commodity scarcity demands that, in the pursuit of justice, we balance individual autonomy against community welfare.

Fiscal scarcity demands a similar balancing act. It often costs hundreds of thousands of dollars to maintain people in persistent vegetative or similar states. We can safely speculate that insurance companies will raise their premiums to cover the substantial losses associated with such patients—indeed, they may raise them so high that some clients will not be able to pay the new premiums. We must ask, therefore, if it is fair that people who have pooled their resources to ensure collective access to appropriate health care be deprived of such care so that all may honor a value (the value of mere biological life) that not all share.³⁷ Assume, for the sake of argument, that the medical community and general society do not achieve consensus about the standard of care for PVS patients and other “low-quality” lives. Might it still be appropriate to suggest that, as a matter of justice, people who want to persist in vegetative states be required to purchase special insurance policies to cover such events?

Public or Private Policy

Because the strategies mentioned above encourage the medical community to be accountable to the public, they are, in my estimation, less problematic than strategies that encourage individual physicians or health care institutions to forge their own “private” futility policies. The potential for abuse of such policies is considerable as we move “toward managed care paradigms, capitated payment structures, and a greater insistence on the importance of primary care physicians and their fulfilling gatekeeper roles in managed care programs.”³⁸

We do not need futility policies or laws that permit physicians to withhold or withdraw “futile” care from

protesting patients. Rather, we need to work on improving the physician-patient relationship. Ideally, patients should make clear to their doctors what personal ends or aims they hope to achieve through treatment. Provided that these personal ends or aims are compatible with the socially sanctioned ends and aims of medicine, the physician should inform the patient of the risks and benefits of all clinically approved treatments appropriate to these personal ends or aims, even those the physician is unable or unwilling (say for reasons of conscience) to provide. Having been so informed, the patient must decide which, if any, of the proposed treatments are worth the burdens they will inevitably impose. If the patient selects a treatment that the physician cannot provide—and we are talking about clinically approved treatments—then the physician must help the patient find a physician who is able and willing to help. For the most part, however, the physician and the patient will agree on a treatment plan that makes sense to both of them and that provides for future contingencies as well as present realities. If a patient makes an advanced care directive to specify treatments to be avoided as well as those desired, then the

physician must be informed about these specifications. It may be that some treatments are not clinically-approved or are ones that the physician is unable or unwilling to provide. Patients should know this before they become incompetent so that their surrogates will not be disappointed, frustrated, or enraged when the physician refuses to honor a living will specifying treatments that would not have been agreed on in a face-to-face discussion.

To be sure, little of what I have said applies to patients who have never entered into a physician-patient relationship. If we want to create such an opportunity for these patients, we must reform our health care system so that the uninsured and the underinsured are not forced to use emergency rooms in their moment of need. Our institutions, systems, and structures often limit our attempts to achieve what we view as ethically ideal. If we believe that the morally superior way to resolve disagreements about treatment or non-treatment is through a close physician-patient relationship rather than through right-to-die statutes or futility policies, then we must transform the bureaucracies that limit our ability to do better. □

References

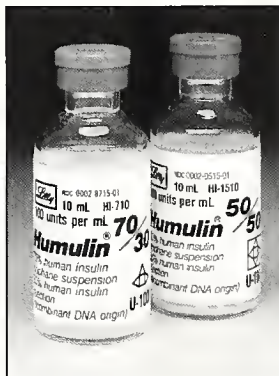
- 1 Truog RD, Brett AS, Frader J, et al. The Problem with Futility. *New Engl J Med* 1992;326:1560.
- 2 Public Law 98-457. Amendments to the child abuse prevention and treatment act (1984).
- 3 Council on Ethical and Judicial Affairs. American medical association guidelines for the appropriate use of do-not-resuscitate orders. *JAMA* 1991;265:1868-71.
- 4 Brett AS, McCullough LB. When patients request specific interventions. *New Engl J Med* 1986;21:1348.
- 5 Miles SH. Informed demand for non-beneficial medical treatment. *New Engl J Med* 1991;7:513.
- 6 Veatch RM, Spicer CM. Medically futile care: the role of the physician in setting limits. *Amer J Law and Med* 1992;1-2:17.
- 7 Veatch and Spicer, op cit., p 211.
- 8 Case histories. Conference proceedings. Managing mortality: ethics, euthanasia, and the termination of medical treatment. Dec 3-5, 1992, Minneapolis, Minnesota.
- 9 Schneiderman LJ, Jecker NS, Jonsen AR. Medical futility: its meaning and ethical implications. *Ann Int Med* 1990;112:950.
- 10 Jonsen AR, Siegler M, Winslade WJ. *Clinical Ethics*. New York: MacMillan Press, 1986, p 14.
- 11 Jonsen AR, Siegler M, Winslade WJ. op cit. p 28.
- 12 Kass L. *Toward a More Natural Science: Biology and Human Affairs*. New York: Macmillan Press, 1985, p 174.
- 13 Kass L. op cit. p 162.
- 14 Kass L. op cit. p 163.
- 15 Kass L. op cit. p 163.
- 16 Angell M. A new kind of right to die case. *New Engl J Med* 1991;7:512.
- 17 Miles SH. Informed demand for non-beneficial medical treatment. *New Engl J Med* 1991;7:514.
- 18 Veatch RM, Spicer CM. Setting limits to medically futile care. *Amer J Law and Med* 1992;1-2:17.
- 19 Paris JJ, Crone RK, Reardon F. Physician's refusal of requested treatment: the case of Baby L. *New Engl J Med* 1990;322:1012.
- 20 Veatch RM, Spicer CM. Setting limits to medically futile care. *Amer J Law and Med* 1992;1-2:34.
- 21 Younger SJ. Who defines futility? *JAMA* 1988;14:2094.
- 22 Younger SJ. op cit..
- 23 Schneiderman LJ, Jecker NS, Jonsen AR. Medical futility: its meanings and ethical implications. *Ann Int Med* 1990;12:951.
- 24 Singer P, Wells D. Making babies: the new science and ethics of conception. New York: Charles Scribner's, 1984, pp 27-29.
- 25 Kelley G. *Medico Moral Problems*. St. Louis: Catholic Hospital Association, 1958, p 135.
- 26 Schneiderman LJ, Jecker NS, Jonsen AR. Medical futility: its meanings and ethical implications. *Ann Int Med* 1990;12:
- 27 Feinberg J. *Social Philosophy*. Englewood Cliffs, NJ: Prentice-Hall, Inc., 1973, p 27.
- 28 Ackerman F. The significance of a wish. *Hastings Center Report* 1991;4:27-29.
- 29 Wolf SM. Conflict between doctor and patient. *Law, Medicine and Health Care* 1988;16:210.
- 30 Lantos JD, Singer PA, Walter RM, et al. Illusion of futility in clinical practices. *Amer J Med* 1989;87:83.
- 31 Tomlinson T, Brody H. Futility and the ethics of resuscitation. *JAMA* 1990;10:1277.
- 32 Jonsen AR, op cit. p 116.
- 33 Case histories. Conference Proceedings. Managing mortality: ethics, euthanasia, and the termination of medical treatment. Dec 3-5, 1992, Minneapolis, Minnesota.
- 34 Callahan D. Medical futility, medical necessity: the problem-without-a-name. *Hastings Center Report* 1991;4:34.
- 35 Callahan D. Clearer definitions sought for PVS, higher brain death. *Med Ethics Advisor* 1992;2:14.
- 36 Morreim EH. Balancing act: the new medical ethics of medicine's new economics. Dordrecht: Kluwer Academic Publishers, 1990, pp 45-70.
- 37 Veatch RM, Spicer CM. Medically futile care: the role of the physician in setting limits. *Amer J Law and Med* 1992;1-2:28-35.
- 38 Veatch RM, Spicer CM. The vying roles of today's physician. *Issues* 1992;6:6.



Because One Size Doesn't Fit All...

Eli Lilly and Company can suit all your needs with the most complete line of human insulins available.

Featuring Humulin 70/30* and our latest addition to the premixed line, Humulin 50/50† — especially useful in situations in which a greater insulin response is desirable for greater glycemic control.



Humulin® 
human insulin
(recombinant DNA origin)

*Tailor-made options in
insulin therapy*

WARNING: Any change of insulin should be made cautiously and only under medical supervision.

*Humulin® 70/30 (70% human insulin isophane suspension, 30% human insulin injection [recombinant DNA origin]).

†Humulin® 50/50 (50% human insulin isophane suspension, 50% human insulin injection [recombinant DNA origin]).



Global Excellence in Diabetes Care
Eli Lilly and Company
Indianapolis, Indiana
46285

Health Watch

VOLUME 54 / NUMBER 8 / AUGUST 1993

Addictions

DRUG ABUSE

How and Why People Become Drug Abusers

Drug abuse often starts with the illicit use of legal drugs and with the use of alcohol (illegal for youth) and tobacco; users often progress from these substances to marijuana. Some users, including over half of the teenagers who use these substances, may eventually turn to other illegal drugs or combinations of drugs. For this reason, alcohol, tobacco, and marijuana are frequently called "gateway" drugs. Use of drugs such as cocaine and heroin is unusual in those who have not previously used alcohol, tobacco, and/or marijuana.

Physical and Psychological Effects of Alcohol and Other Drugs

Alcohol

Alcohol, a natural substance formed by the fermentation that occurs when sugar reacts with yeast, is the major active

ingredient in wine, beer, and distilled spirits. Although there are many kinds of alcohol, the kind found in alcoholic beverages is ethyl alcohol. Whether one drinks a 12-ounce can of beer, a shot (1.5 ounces) of distilled spirits, or a 5-ounce glass of wine, the amount of pure alcohol per drink is about the same—one-half ounce. Ethyl alcohol can produce feelings of well-being, sedation, intoxication, or unconsciousness, depending on the amount and the manner in which it is consumed.

Alcohol is a "psychoactive" or mind-altering drug, as are heroin and tranquilizers. It can alter moods, cause changes in the body, and become habit-forming. Alcohol is called a "downer" because it depresses the central nervous system. That's why drinking too much causes slowed reactions, slurred speech, and sometimes even unconsciousness (passing out). Alcohol works first on the part of the brain that controls inhibitions.

Some of the serious diseases associated with chronic alcohol use include alcoholism and cancers of the liver, stomach, colon, larynx, esophagus, and breast. Alcohol abuse also can lead to such serious physical problems as:

- Damage to the brain, pancreas and kidneys
- High blood pressure, heart attacks and strokes
- Alcoholic hepatitis and cirrhosis of the liver

North Carolina Medical Society, PO Box 27167, Raleigh, NC 27611.

- Stomach and duodenal ulcers, colitis, and irritable colon
- Impotence and infertility
- Birth defects and Fetal Alcohol Syndrome, whose effects include retardation, low birth weight, small head size and limb abnormalities
- Premature aging
- A host of other disorders, such as diminished immunity to disease, sleep disturbances, muscle cramps and edema

Marijuana

Marijuana comes from the hemp plant, *CANNABIS SATIVA*, which grows in many parts of the world. The dried flowers and leaves of this plant are usually smoked in a cigarette ("joint") or a pipe. It can also be eaten. Marijuana contains hundreds of chemicals, which affect the mind and body. Among the chemicals causing the "high" that people experience, THC (delta-9-tetrahydrocannabinol) is the main ingredient. The amount of THC and other chemicals varies greatly in different marijuana plants, and from "joint" to "joint."

Contrary to many people's beliefs, marijuana is a harmful drug. Preliminary studies have shown chronic lung disease in some marijuana users. There are more known cancer-causing agents in marijuana smoke than in cigarette smoke. In fact, because marijuana smokers try to hold the smoke in their lungs as long as possible, one marijuana cigarette can be as damaging to the lungs as four tobacco cigarettes.

Even small doses of marijuana can impair memory function, distort perception, hamper judgment, and diminish motor skills. Chronic marijuana use can cause brain damage and changes in the brain similar to those that occur during aging. Health effects also include accelerated heartbeat and, in some persons, increased blood pressure. These changes pose health risks for anyone, but particularly for people with abnormal heart and circulatory conditions, such as high blood pressure and hardening of the arteries.

Marijuana can also have a serious effect on reproduction. Some studies have shown that women who smoke marijuana during pregnancy may give birth to babies with defects similar to those seen in infants born with Fetal Alcohol Syndrome—for example, low body weight and small heads.

More importantly, there is increasing concern about how marijuana use by children and adolescents affects both their short- and long-term development. Mood changes occur with the first use. Observers in clinical settings have noted increased apathy, loss of ambition, loss of effectiveness, diminished ability to carry out long-term plans, difficulty in concentrating, and a decline in school or work performance. Many teenagers who end up in drug treatment programs started using marijuana at an early age.

Cocaine

Cocaine is one of the most powerfully addictive drugs of abuse—and it is a drug that can kill. No individual can predict whether he or she will become addicted or whether the next dose of cocaine will prove fatal. Cocaine can be snorted through the nose, smoked, or injected. Injecting cocaine—or injecting any drug—carries the added risk of infection with the Human Immunodeficiency Virus (HIV), the virus that causes Acquired Immunodeficiency Syndrome (AIDS), if the user shares a needle with a person already infected with the virus.

Cocaine is a very strong stimulant to the central nervous system, including the brain. This drug produces an accelerated heart rate while at the same time constricting the blood vessels, which are trying to handle the additional flow of blood. Pupils dilate and temperature and blood pressure rise. These physical changes may be accompanied by seizures, cardiac arrest, respiratory arrest, or stroke.

Nasal problems, including congestion and a runny nose, occur with the use of cocaine, and with prolonged use the mucous membrane of the nose may disintegrate. Heavy cocaine use can sufficiently damage the nasal septum to cause it to collapse.

Research has shown that cocaine acts directly on what have been called the "pleasure centers" in the brain. These "pleasure centers" are brain structures that, when stimulated, produce an intense desire to experience the pleasure effects again and again. This causes changes in brain activity and, by allowing a brain chemical called dopamine to remain active longer than normal, triggers an intense craving for more of the drug.

Users often report feelings of restlessness, irritability, and anxiety, and cocaine can trigger paranoia. Users also report being depressed when they are not using the drug and often resume use to alleviate further depression. In addition, cocaine users frequently find that they need more and more cocaine more often to generate the same level of stimulation. Therefore, any use can lead to addiction.

"Freebase" is a form of cocaine that is smoked. "Freebase" is produced by a chemical process whereby "street cocaine" (cocaine hydrochloride) is converted to a pure base by removing the hydrochloride salt and some of the "cutting" agents. The end product is not water soluble, and so the only way to get into the system is to smoke it. "Freebasing" is extremely dangerous. The cocaine reaches the brain within seconds, resulting in a sudden and intense high. However, the euphoria quickly disappears, leaving the user with an enormous craving to freebase again and again. The user usually increases the dose and the frequency to satisfy this craving, resulting in addiction and physical debilitation.

"Crack" is the street name given to one form of freebase cocaine that comes in the form of small lumps or shavings. The term "crack" refers to the crackling sound made when the mixture is smoked (heated). Crack has become a major problem in many American cities because it is inexpensive—

selling for between \$5 and \$10 for one or two doses—and easily transportable—sold in small vials, folding paper or tinfoil.

Heroin

Heroin is a powerful illegal drug made from the opium poppy. Its addictive properties are manifested by the need for persistent, repeated use of the drug (craving) and by the fact that attempts to stop using the drug lead to significant and painful physical withdrawal symptoms. Use of heroin causes physical and psychological problems such as shallow breathing, nausea, panic, insomnia, and a need for increasingly higher doses of the drug to get the same effect.

Heroin exerts its primary addictive effect by activating many regions of the brain; the brain regions affected are responsible for producing both the pleasurable sensation of "reward" and physical dependence. Together, these actions account for the user's loss of control and the drug's habit-forming action.

Heroin is a drug that is primarily taken by injection (a shot) with a needle in the vein. This form of use is called intravenous injection (commonly known as IV injection). This means of drug entry can have grave consequences. Uncertain dosage levels (due to differences in purity), the use of unsterile equipment, contamination of heroin with cutting agents, or the use of heroin in combination with such other drugs as alcohol or cocaine can cause serious health problems such as serum hepatitis, skin abscesses, inflammation of the veins, and cardiac disease (subacute bacterial endocarditis). Of great importance, however, is that the user never knows whether the next dose will be unusually potent, leading to overdose, coma, and possible death.

Needle sharing by IV drug users is fast becoming the leading cause of new AIDS cases. It is estimated that one in three persons with AIDS acquired the virus through needle sharing. The AIDS virus is carried in contaminated blood left in the needle, syringe, or other drug-related implements and is injected into the new user when he or she uses this equipment to inject heroin or other drugs. There is no cure for AIDS and no proven vaccine to prevent it.

Heroin use during pregnancy is associated with stillbirths and miscarriages. Babies born addicted to heroin must undergo withdrawal after birth and these babies show a number of developmental problems.

The signs and symptoms of heroin use include euphoria, drowsiness, respiratory depression (which can progress until breathing stops), constricted pupils, and nausea. Withdrawal symptoms include watery eyes, runny nose, yawning, loss of appetite, tremors, panic, chills, sweating, nausea, muscle cramps, and insomnia. Elevations in blood pressure, pulse, respiratory rate, and temperature occur as withdrawal progresses.

How can I tell if someone I know is using drugs?

Aside from the physical effects of drug addiction that have been spoken of previously, certain warning signs may indicate that a family member or friend is drinking too much alcohol or using other drugs. Although these warning signs are not foolproof, each by itself or many signs combined over time should be cause for concern.

These are some of the signs to look for which involve drinking:

- Does the person pour a drink as an immediate reaction when faced with any problem?
- Does the person drink until intoxicated?
- Is there a record of missed work because of drinking or an ill-disguised odor of alcohol on the breath during work hours even though attendance may be regular?
- Does the person drive a car while intoxicated?
- Has his or her home life become intolerable because of drinking or arguments resulting from drinking?
- Does he or she handle all social celebrations and stress with alcohol?

When these signs are present, it means that person's drinking pattern, if not already out of control, is heading that way. **A person does not have to be an alcoholic to have problems with alcohol.**

There are numerous signs of illegal drug use. For example when a person is carrying drugs or has them hidden around the house, there is a strong possibility of use. Obviously, possession of drug paraphernalia also is a likely sign of use.

Indications of prescription drug misuse vary according to the type of drug in question. Drug misuse may lead to dependence, and withdrawal symptoms can be severe if drug use is stopped suddenly.

Certain additional behavioral characteristics also seem to accompany the use of alcohol and other drugs. The clues can be found in all people who abuse alcohol and other drugs, regardless of age. Example of these clues include:

- An abrupt change in mood or attitudes;
- Sudden and continuing decline in attendance or performance at work or in school;
- Sudden and continuing resistance to discipline at home or in school;
- Impaired relationships with family members or friends;
- Unusual flares of temper;
- Increased amount and frequency of borrowing money from family and friends;
- Stealing from the home, at school, or in the workplace;
- Heightened secrecy about actions and possessions; or
- Associating with a new group of friends, especially with those who use drugs.

What can I do if I have a problem?

If you have an alcohol or drug problem, you should do three things immediately. First, admit it to yourself. Acknowledge that you do have a problem and that something must be done.

Second, contact a group that can recommend or provide treatment and moral support such as Alcohol Alcoholics Anonymous, local substance abuse programs, inpatient programs, etc.

Third, admit your problem to the members of your immediate family and/or closest friends. Mobilize the family unit and others who act as support for you to help provide the strength you will need to address your reasons for use and the difficulties of freeing yourself of addiction to alcohol and other drugs.

What about friends or family members?

If someone confides in you that he or she has a problem with alcohol or other drugs, some ways of dealing with this situation clearly work better than others. You should try to be:

- Understanding—listen to reasons when he or she uses/abuses alcohol or other drugs;
- Firm—explain why you feel that use of alcohol or other drugs can be harmful, causing problems which require counseling and treatment;
- Supportive—assist the user in finding help and provide moral support through the tough times ahead;
- Self-examining—ask yourself whether you have provided a good role model.

Actions that you should avoid include being:

- Sarcastic,
- Accusatory,
- Stigmatizing,
- Sympathy seeking for yourself, or
- Self-blaming.

Intervening in the case of a family member or friend who has a problem can be very difficult and hurtful. The person

with the problem will most likely deny the problem and try to put you on the defensive—"I thought you were my friend; are you calling me a drunk?" Or, "You've used drugs; so where do you get off calling me an addict?" In a case such as this, what you don't do is as important as what you should do:

- Avoid emotional appeals, which may only increase feelings of guilt and the compulsion to drink or use drugs.
- Don't cover up or make excuses for the person.
- Don't take over his or her responsibilities

Where To Go For Help

Sometimes the quickest way to find out what help is available in your local area is to join a group such as Al-Anon. Al-Anon is a group of family members and friends of problem drinkers who meet to share practical suggestions on day-to-day living with someone who has a drinking problem. These family members and friends of problem drinkers usually know where help is available in your community.

In North Carolina local mental health programs offer a variety of services for substance abusers and their families. There are also many private counseling groups that specialize in treating persons with substance abuse problems.

For information on where to find treatment for alcohol and other drug problems, the best place to look is in the telephone book's Yellow Pages under "Alcoholism Information" or "Drug Abuse and Addiction Information." Usually there is a listing of the nearest Council on Alcoholism (or Council on Alcohol and Drug Abuse). These councils provide information over the phone on the availability of the nearest alcohol treatment programs. Alcoholics Anonymous (AA) or Narcotics Anonymous (NA) may also be listed. Both offer immeasurable help in enabling people to cope with problems with alcohol and other drugs.

Reference

U.S. Department of Health and Human Services, Public Health Service, Alcohol, Drug Abuse, and Mental Health Administration. (1990). *What You Can Do About Drug Use In America*. □

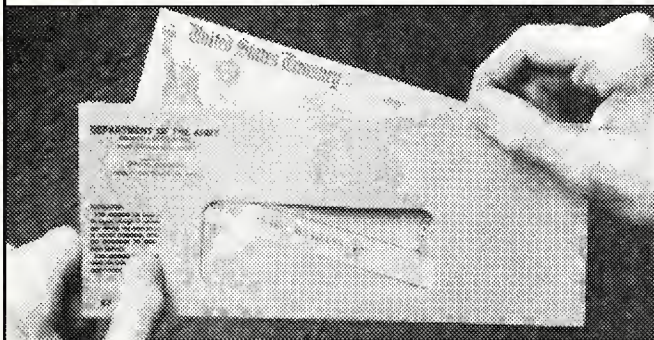
1993

September *Sexual Addiction*

RESIDENT ALERT: IF YOU COULD USE OVER \$25,000 A YEAR— ANSWER THIS AD.

The U.S. Army's Financial Assistance Program (FAP) will subsidize training in certain specialties totaling over \$25,000 a year.

Here's how it breaks down - an annual



grant, plus a monthly stipend and reimbursement of approved educational expenses.

You will be part of a unique health care team where you will find many opportunities to continue your education, work at state-of-the-art facilities, and receive outstanding benefits.

So, if you are a resident who could use over \$25,000 a year, contact an Army Medical Counselor immediately.

Call Collect 804-771-2354

ARMY MEDICINE. BE ALL YOU CAN BE.®

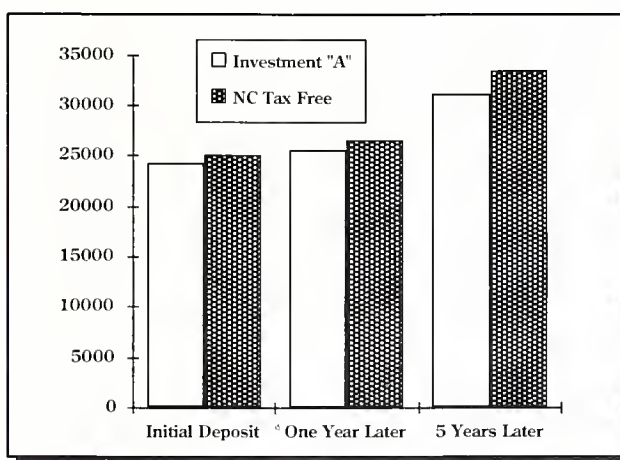
Minimum Tax. Maximum Return.

The North Carolina Tax Free Bond Fund. A No Load Fund.

Many financial experts today are predicting that municipal bonds will be among the safest, most productive investments available this decade. The North Carolina Tax Free Bond Fund provides the tax free benefits of municipal bonds with the added benefit of diversity that you get in a mutual fund.

This unique fund also features NO up front commissions, NO 12b-1 fee and NO deferred sales charge. So you don't start off "in the hole" as you do with traditional "loaded" funds. Minimum initial deposit is \$10,000. Custodian is Wachovia Bank of North Carolina, N.A.

Call 1-800-525-FUND today for more information and a free prospectus.



This chart compares the North Carolina Tax Free Bond Fund with a typical taxable fund with standard 3% up front commission. The chart assumes a \$25,000 investment in each, an 8% return for investment "A" and 6% return for The NC Tax Free Bond Fund. A 35% tax bracket is assumed. The chart is not meant to represent a projection or guarantee of future performance. Read the prospectus carefully before investing or sending money.

A PRIVATE OCEANFRONT RETREAT TO CALL YOUR OWN...DEWEES ISLAND MINUTES FROM CHARLESTON, SC



Located only a nine-minute ferry ride north of the Isle of Palms, Dewees Island offers oceanfront and oceanview homesites. Here you'll find one of South Carolina's most breathtaking and expansive beaches, with a development plan dedicated to preserving the island's natural environment.

A convenient property owner's ferry service links the island to a private marina on the Isle of Palms, placing it only minutes from downtown Charleston and the Charleston International Airport.

Environmental covenants limit the number of homes that may be built to 150, thus ensuring the 1,206-acre island will forever be uncrowded...and natural.

Come explore one of the South's last oceanfront islands available for development...

you'll find unspoiled beauty at a surprisingly affordable price.

Oceanview homesites from \$150,000, Oceanfront homesites from \$315,000.

For more information, call 1-800-444-7352 or 886-8783.

PAT ROSS, BIC

DEWEES ISLAND



A PRIVATE, OCEANFRONT
ISLAND RETREAT
DEDICATED TO
ENVIRONMENTAL PRESERVATION

Obtain the property report required by federal law and read it before signing anything. No federal agency has judged the merits or value, if any, of this property.

Patient Waiver of Informed Consent

Nancy M.P. King, J.D.

You sit in the office with a patient to whom you have just given a diagnosis. Not life-or-death, but nothing minor, either—maybe early prostate cancer, or gallbladder disease, or an ulcer, or lumbar disc herniation, or angina, or endometriosis. Something for which there is more than one accepted treatment, or for which there are several treatment possibilities that differ significantly in invasiveness or effectiveness, or perhaps there is even a question whether any treatment is better than no treatment at all. As you begin to discuss the treatment options, the patient stops you: "Doctor, I don't need to hear all the details. You're the expert, do what you need to do."

Your patient has just waived exercise of the right to informed consent. You should do which of the following:

- a. Breathe a sigh of relief and schedule the appropriate procedure.
- b. Exclaim, "You can't do that, I have to consent you!"
- c. Consult a lawyer.
- d. Consult a philosopher.
- e. Read this essay.

Readers accustomed to multiple choice examinations will readily deduce the correct answer. More important, though, is the question of why, when so many unresolved and misunderstood issues already surround the problem of informed consent, we should concern ourselves with patients who choose to rely on their physicians rather than to be informed. The short answer is that understanding the meaning of waiver in this context can help us untangle the meaning and workings of the informed consent doctrine as a whole—something that we overlook too often in our desire to discharge the doctrine's perceived legal obligations. Examining what it means to "waive informed consent" provides us an opportunity to better understand the roles of patient and physician in treatment decision-making, what decision-making in the physician-patient relationship means, and what makes sense. In this essay I take the position that, because many patients have only an imperfect understanding of their right of informed consent, physicians have a fiduciary obligation (one founded in the relationship of trust

between doctor and patient) to discuss with patients the meaning and implications of any purported waiver before it may be honored.

The Legal and Moral Aspects of Informed Consent

According to the common law, the doctrine of informed consent holds that "Every human being of adult years and sound mind has a right to determine what shall be done with his own body."¹ Any physician who treats a patient without first obtaining his or her informed consent is liable for damages if the treatment results in foreseeable injury that could have been avoided had the adequately informed patient refused to give consent.^{2,4}

In moral terms the informed consent doctrine is somewhat more expansive, recognizing that the failure to give patients adequate information is a "dignitary injury" that violates their autonomy regardless of whether physical injury results.⁵⁻⁷ Yet many patients appear to place little value on their right to informed choice, preferring to defer to the physician completely: "Whatever you say, you're the doctor!"

A "You're the doctor" speech ought to make physicians uneasy. On one hand, the patient appears to be expressing confidence in the physician's judgment—just what every physician should want. On the other hand, doctors might have some moral uneasiness about a patient's easy acquiescence to medical authority. No matter whether we see informed consent as reflecting a decision-making partnership between physicians and patients (as held by some medical ethicists^{7,8}) or the primacy of patients' autonomous choices (as maintained by others^{5,9,10}), waiving the disclosure of information and giving the choice back to the doctor should properly be a rare occurrence. The words of waiver ought to be a warning signal to physicians, requiring further investigation to determine what patients really mean when they speak them.

What Is Waiver?

"Waiver" is a technical legal term that refers to the voluntary and intentional relinquishment of a known right. Individuals

Ms. King, co-guest editor of this issue, is a professor in the Department of Social Medicine, University of North Carolina, CB# 7240, Wing D, Chapel Hill 27599. An earlier version of this manuscript was presented in 1988 at the annual meeting of the Society for Health and Human Values, Chicago, Illinois.

may waive many of their rights, in both civil and criminal law, so long as their waivers are examined and found to satisfy the following: (1) the individuals knew that the rights were theirs to waive; (2) they understood that they were waiving their rights; and (3) they acted freely and without coercion.¹¹⁻¹³

Waiver is one of four recognized exceptions to the common-law doctrine of informed consent, the others being cases of emergency, incompetence (or decisional incapacity), and the therapeutic privilege (the physician's judgment that conveying certain kinds of information would be harmful to some patients).^{2,3,5,6,14} Although waiver is discussed infrequently in informed consent cases,¹⁵⁻¹⁸ it is the only exception that may be invoked by the patient rather than the physician—the only one that has patient autonomy as its basis rather than the physician's judgment of the patient's best interests. Waiver permits patients to exercise their autonomy by refusing rather than receiving information or by delegating treatment choice to another decision-maker.^{5,6,14} Thus, to make a valid waiver of their right to informed consent, patients must know that they have the right, must know that they are giving it up, and must do so freely.^{3,5,6}

When patients make a "You're the doctor" statement, simply labeling such a statement as a waiver reinforces a crucial point about decision-making in health care: It is the patient who owns the authority to decide. It is not acceptable to ignore a patient's refusal of information, as hurried but well-meaning doctors have occasionally done. Nor is it acceptable to view as a waiver of informed consent every hint of hesitation or passivity in a patient's response to offers of disclosure. From a legal standpoint, many patient waivers go unnoticed because even patients who take no part in decision-making usually sign hospital consent forms nonetheless. The moral issue remains, however, and it is a delicate one: How should we honor a patient's choice *not* to make an informed choice while preserving informed consent's powerful endorsement of patient self-determination and of rational decision-making?¹⁹

What is Waived?

Patients who waive informed consent can actually do one of three very different things: (1) They can give up their right to information, but still retain their right to make decisions. (2) They can retain the right to receive information but leave the choice to the physician (or to someone else). (3) They can give over the entirety of the decisional responsibility to the physician, neither receiving information nor making decisions.^{6,14}

In order to express a valid waiver, patients must know that they have the right to make an informed choice and that waiver means giving up the exercise of that known right. But how can patients waive a right they don't know about, a right they waive precisely because they don't want to know or choose?

If a patient waives the right to make a decision without

also waiving the right to disclosure—as when, for example, the patient receives all the information and then asks the physician to make the choice—it is easy to ensure a knowing waiver by additionally reminding the patient "It's your choice. If you want me to decide for you, you're giving up the power to make the choice yourself." There may be little difference between waiving the choice and choosing to follow the physician's recommendations for the already informed patient who understands this distinction.

If, however, the patient waives information disclosure instead of, or in addition to, waiving the decision itself, the problem of securing a knowing waiver becomes more difficult. There are two possible aspects of a "knowing" waiver of information disclosure: (1) knowing that you have (and are relinquishing) the right to choose; and (2) knowing what your choices are.⁵ If only the first is necessary, a knowing waiver can be made with a statement like the one quoted above, but if both aspects are necessary, waiver seems impossible (the patient would be waiving the right to know what he or she already knows). Yet most patients who seek to waive disclosure of information already have at least *some* knowledge. They know why they went to the doctor in the first place; they know what hurts. They know, or soon will know, whether they will need hospitalization, and they will be confronted with the experience of whatever treatment the physician deems appropriate. Patients who know that they may reinvolve themselves in the decision-making process at any time will be able to seek information or to make new decisions at later points. But if the physician's preferred treatment is very different from usual treatment options, or if the problem seems very different in degree or in kind from what the patient originally contemplated in deciding to waive informed consent, the waiver may not be acceptable. A waiver of information disclosure based on a mistakenly narrow view of the risks faced may leave the patient with an incorrect understanding of what might go wrong. Therefore, even if patients waive information, they may nonetheless have to be told some things in order for their waivers to be valid. In order to determine whether more information is in the patient's best interests in a particular case, the physician should investigate the patient's reasons for waiver.

Why Patients Waive

There are four common kinds of patient waiver scenarios:

1. Patients appear to waive informed consent because they do not know they own the right to decide. This is not a valid waiver, because it is not knowing.
2. Patients may waive because they do not want to antagonize caregivers. This is an invalid waiver, because it is not voluntary.
3. Patients may knowingly and voluntarily refuse the cognitive burden of information and decision-making. This is a valid waiver.
4. Patients may knowingly and voluntarily refuse the emo-

tional burden of information and decision-making. This, too, is a valid waiver.

Valid waivers have one of two bases: (1) Patients may believe themselves intellectually incapable of receiving information or making decisions, or both; or (2) patients may just not want to make decisions, without believing themselves unable. It may be important to distinguish between these.

The Knowing Waiver

It is never safe to assume that patients know that they hold the right to make decisions about their own health care. Despite the past decade's growth in awareness of patients' rights, there are many reasons why patients still may not know the nature and extent of their authority over decisions.^{5,6} Knowing that one has non-specific "rights" as a patient does not necessarily imply a decision-making role and, in any event, discussion of patients' legal rights in the treatment setting is potentially adversarial and may be counterproductive.¹⁴

Furthermore, even those who know that they have the right to decide may believe they gave it up long ago. Many patients, especially those in tertiary care settings, feel that just the decision to seek treatment or to enter the hospital entails a surrender of all further decision-making power. Early court decisions dealing with informed consent specifically refute the assumption that patients implicitly consent to whatever the physician deems necessary simply by entering into the physician-patient relationship.^{21,22} Yet this assumption is still reinforced in many subtle ways. For example, the patient and the physician may decide to pursue a course of treatment that is available only from specialists, only at a tertiary referral center, or only in another state. By the time the patient receives complete informed consent disclosure, he or she is already committed to the decision, in the care of another physician, hospitalized, and far from home. The informed consent process may then represent no more than a legal signature on a *fait accompli*.^{5,6} To counter this misinterpretation of the patient's treatment experience, caregivers must routinely do more than the bare law of informed consent seems to require. The legal litany of informed consent disclosure includes the proposed procedure's nature and consequences, its risks, and alternative treatments, including the possibility of no treatment.^{2,3,5} But procedure-specific information is really not enough.

At the beginning of the physician-patient relationship physicians must briefly explain the relationship, stating that they will discuss the patient's condition and the medical plan, will give the patient their best medical advice, answer questions, and seek the patient's permission for tests, procedures, drug administration, and significant changes in care. This, or something like it, constitutes a statement of the role of informed consent in the relationship. All patients need to know this. It is important to state clearly that the final decision belongs to the patient and that the physician will

honor the patient's choice. This establishes the patient's decisional authority within the relationship, without resort to legalese. If patients do not understand that they have this authority at all times, not only are waivers suspect, but so are all consents.^{5,6}

The Voluntary Waiver

Even when patients know that decision is theirs, they may passively waive their rights because they see this as necessary to preserve the attitude of deference and compliance without which, they believe, their care will be compromised.^{5,7,23} This fear may sometimes have basis. Compliant patients are "easy" to care for, and caregivers, being human, may sometimes find themselves having to resist viewing those who ask questions as troublemakers. If patients feel that they have no choice other than to waive their rights in order to avoid an even less desirable alternative, the waiver is not voluntary.^{5,6}

It may be hard to tell whether passive patients are passive from lack of knowledge of their rights, which can be cured by simple disclosure; or from a natural passivity that is characteristic for them even outside the medical setting; or from a perceived need for compliance with caregivers under the special circumstances of health care. Thus, in addition to making disclosure to patients, physicians must carefully cultivate an atmosphere that encourages questions and promotes involvement. Patients must understand the nature of their decision-making authority and be assured that the authority is real and will be recognized without compromising their care, or else their waivers of information or decision will not be valid.

Evaluating Waivers

Sometimes patients refuse information or decision-making because the information itself is difficult to comprehend. Patients may feel incapable of understanding; or may feel that doctors, being knowledgeable experts, will make better choices; or may simply prefer not to know details. And sometimes patients waive information or decision on purely emotional grounds, either because they feel overwhelmed by the situation and incapable of action or because they simply choose not to increase the burden of illness by making decisions.

Both types of valid waiver can minimize patients' burden of decision-making but cannot eliminate all of their involvement in their care. It is important that physicians try to understand patients' reasons for waiver. Waivers may be inexplicit. Patients who don't want to hear information do not always say "Please, Doctor, I don't want to know." They may find ways to waive information disclosure by not asking questions or seeking information, or by managing to avoid being available for discussion. However, reluctance to ask questions, to raise issues, or to face decisions is not neces-

sarily the same as the desire to waive information or decision. The law of informed consent does not permit physicians to assume that patient passivity amounts to an inexplicit waiver.^{5,14} The waiver exception does not apply unless a patient explicitly declares it.

Even though physicians may be concerned about raising issues with apparently reluctant patients, in order to elicit an explicit waiver the physician must begin the process of informing the patient for decision, unless another recognized exception to informed consent exists. Merely offering information only if the patient wants it does not satisfy the informed consent requirement,^{5,6,14} because that invites patients to conclude that the physician really doesn't want to give information and doesn't have to give information. Legally and morally appropriate practice includes an explanation that the patient has the authority to decide and begins the disclosure of information calculated to assist in that decision. The physician's disclosure must be part of a give-and-take that permits patients sufficient opportunity to interpose questions and also to stop the process and refuse information and decision if they wish.⁵ Good informed consent practice enables patients to make explicit waivers. It is not paternalistic to require patients to decide and declare what their role in the decision-making process will be; on the contrary, it is necessary for physicians to press patients to make such decisions.^{5,20}

Waiver must be distinguished from the physician's or family's concern that a patient does not have the capacity to make treatment decisions or that disclosure may be harmful or distressing to a patient. The physician must always begin with the assumption that the patient does have decisional capacity, unless proven otherwise.^{3,5,6,14} Moreover, the family cannot waive informed consent on the patient's behalf (unless the patient has explicitly given decisional authority to a family member); nor can the family invoke the "therapeutic privilege."^{5,6,14} The therapeutic privilege exception to the informed consent requirement is generally interpreted quite narrowly, in order to prevent its misuse. According to this narrow view, the privilege may only be invoked when, in the physician's best medical judgment, disclosure of risk information would make the patient "so ill or emotionally distraught as to foreclose a rational decision" or otherwise pose grave risk of significant physical or psychological harm.^{2,14} Information may not be withheld just because the physician believes it will frighten the patient, even frighten him or her into refusing a treatment the physician deems necessary.^{2,3,5,14} If the patient is capable of decision-making, the physician must approach the patient for informed consent as usual, but preface portions of the disclosure by telling the patient that some of the information could be upsetting. This gives capable patients the opportunity for waiver, and also gives the physician the opportunity to assess the risks of disclosure by offering information in a supportive atmosphere and observing the response.

Physicians' duty to respect patient autonomy also requires them to promote and enhance the patient's autonomy and to promote rational decision-making.^{5,19} Patients' ca-

pacities to understand information and make decisions about their care can be adversely affected by many aspects of illness and hospitalization. Some of those effects can be ameliorated by autonomy-enhancing supports of various types. For example, if pain, fever, or analgesic medication has compromised the patient's concentration, reasoning, or memory, it may be possible to alter the patient's medication, even temporarily, to ameliorate those effects.²⁴ If the patient is overwhelmed by the technical language of medicine or has difficulty making real-world sense of risk percentages, the physician has the responsibility to explain things in accessible language and to give examples.⁵

Patients may become information-overloaded, may reach their saturation point and refuse to hear any more. This can be avoided by giving information in manageable chunks; by helping the patient to sort the information according to its nature and importance, so that factors can be priority-ranked in the patient's mind; and by letting the process of informing for decision take place in several installments over time.^{5,6,25,26} Physicians must anticipate limitations on patients' abilities to absorb unfamiliar information quickly, and must make use of the nursing staff and others who can help patients understand the information. In these ways, when patients declare themselves unable to understand, they can be offered genuine help in understanding and be encouraged to make such an attempt before deciding they just can't deal with it.

Patients whose reason for waiver is emotional distress may be more difficult to approach with a program of support because they are more likely to refuse to take any part in being informed or in making decisions. Patients who are frightened by unfamiliar surroundings or by their sudden dependency may be helped by sympathetic attention from caregivers, by visits from chaplains and social workers, or by counseling. Here again, anticipation of patients' needs for emotional support is advisable. It is foolish to try to make patients partners in decision-making without being prepared to meet their emotional as well as their informational needs. Patient waivers with an emotional basis may be quite difficult to alter. Some waivers may not simply be deference to the physician's authority or expertise but, rather, refusals of decisional responsibility. Some patients, in choosing waiver, may be seeking refuge from their own feelings about their illnesses by blaming the caregiver who assumes responsibility. Such a waiver, though perhaps not explicitly so understood by the patient, is in reality a kind of assertion of power in the face of perceived powerlessness. The only thing that I can say about this is that it is another thing the physician can anticipate. To guard against it physicians should try, from the beginning of their relationship with the patient, to make the patient a true partner in decisions, so that the patient can exercise power more productively.⁷

Honoring Waivers

Valid waivers must be honored. When patients are willing to receive information but choose to waive the decision

itself, they usually defer to the physician's judgment. Sometimes, however, the patient may request that a family member or friend hear information or decide or both. Once the physician is satisfied that such a deferral is voluntary (which may be a real issue, especially for elderly patients who defer to the relatives upon whom they are dependent²⁷), the physician must engage fully in the informed consent process with the proxy decision-maker. If the patient wishes the physician to decide, the physician should in addition offer to inform a family member or friend, explaining that discussion with someone who knows the patient will help the physician to make a better decision, and asking the patient to suggest which family member or friend to consult.

Physicians may be reluctant to honor some valid waivers that appear to be refusals of decisional responsibility, especially when the stakes for the patient are high and when the patient's personal values seem central but remain unexpressed. In these difficult circumstances physicians should openly confess their reluctance to the patient. Enumerating some of the ways in which different values and preferences affect decisions may help patients to see how their participation can matter.³

If the patient waives disclosure of information but still wants to decide, the same offer of discussion with a person designated by the patient should be made. Waivers of information but not decision ("Don't tell me anything, I've made up my mind!") may seem strange, but they are far from uncommon and cannot be summarily rejected as irrational.²⁸ Each such waiver must be carefully examined on its own merits. It is certainly conceivable that a patient attempting this kind of waiver could be deemed incapable of decision-making, but this is far from inevitable.

Just as the patient's changing condition may mean that new information must be disclosed and new decisions made, the patient's waiver decision may change as well. For

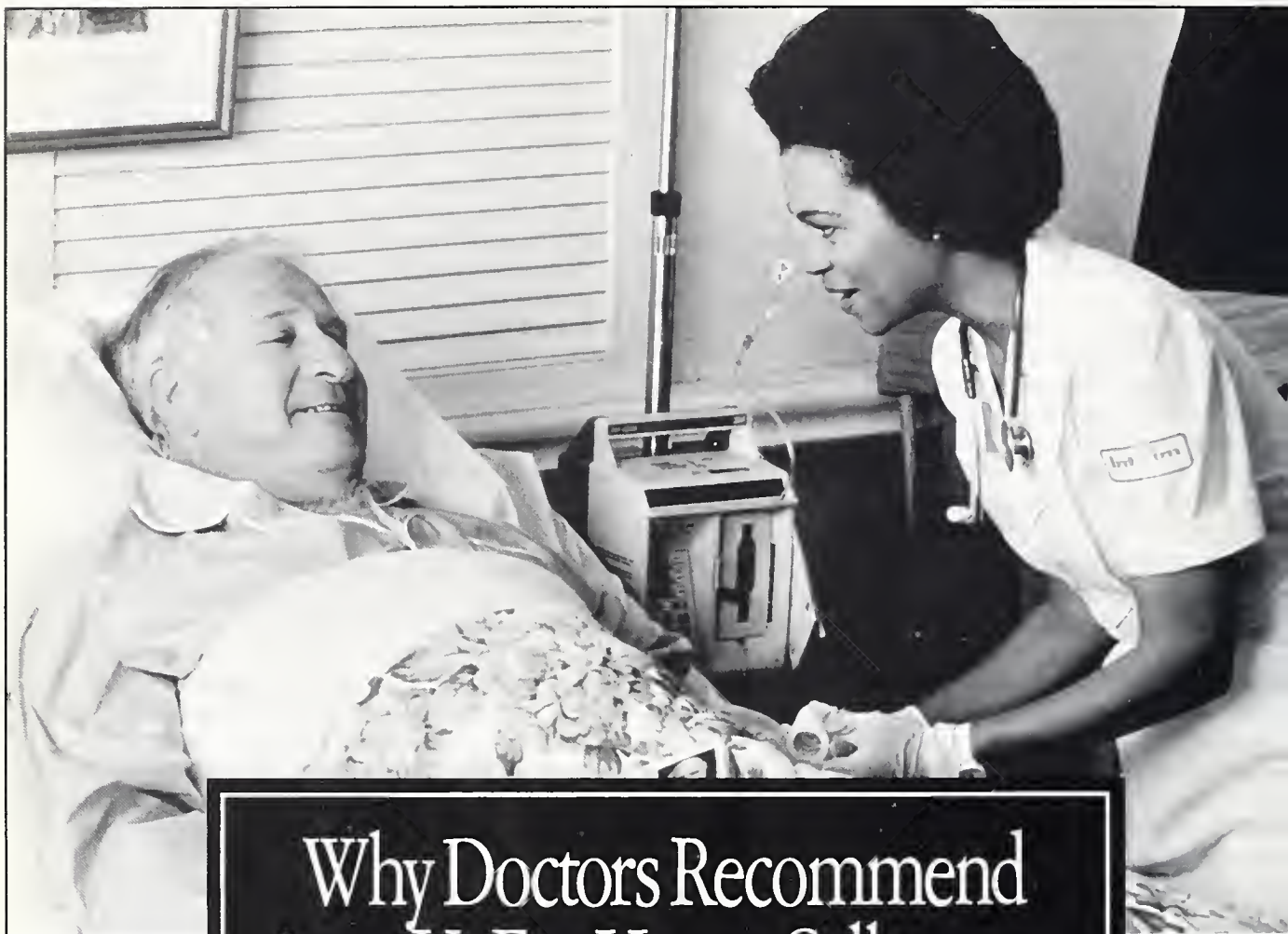
example, a patient who declines to choose between two treatments for a curable condition might want very much to be involved if the condition worsens and recovery becomes questionable. Physicians should invite patients to reexamine their waiver decisions whenever their circumstances change. More importantly, the possibility of such changes must be anticipated. If patients are told that the physician will advise them whenever changes in their condition warrant new disclosures, that they may wish to become more involved in future decisions about their care, and that they will be better prepared if they begin participating now than if they wait until things change, the physician can be assured that their waivers are as informed and thoughtful as may reasonably be expected.

Autonomy, Education, and the Physician's Role

Patient waivers represent a dilemma in the physician-patient relationship. The patient's autonomy is a paramount value, upheld by informed consent. However, if patients autonomously choose not to be informed, or not to make choices, it is wrong to force information and choice on them. Valid waivers of informed consent are paradoxical things: autonomous choices to renounce autonomous decision-making and thereby remain completely reliant on the physician's judgment. It isn't easy for the physician to be both persistent and sensitive to the patient's needs about informed consent. It is easy to accept a waiver readily, and it is even easy to ignore one. But it is better for the physician to take a position that discourages patient waivers and encourages patients to hear and use as much information as possible, while recognizing and respecting the patient's waiver rights and continuing to listen. □

References

- 1 Scholendorff v. Society of New York Hospital, 105 N.E. (NY 1914).
- 2 Canterbury v. Spence, 464 F.2d 772 (D.C. Cir. 1972).
- 3 Rozovsky F. Consent to Treatment: A Practical Guide. Boston: Little, Brown, 1984.
- 4 Meisel A. The expansion of liability for medical accidents: from negligence to strict liability by way of informed consent. Neb L Rev 1977; 50:51-152.
- 5 Faden RR, Beauchamp TL, King NMP. A History and Theory of Informed Consent. New York: Oxford University Press, 1986.
- 6 Appelbaum PS, Lidz CW, Meisel A. Informed Consent: Legal Theory and Clinical Practice. New York: Oxford University Press, 1987.
- 7 Katz J. The Silent World of Doctor and Patient. New York: The Free Press, 1984.
- 8 Pellegrino E, Thomasma D. For the Patient's Good: The Restoration of Beneficence in Health Care New York: Oxford University Press, 1988.
- 9 Veatch R. A Theory of Medical Ethics. New York: Basic Books, 1981.
- 10 Beauchamp T, Childress J. Principles of Biomedical Ethics, 3d ed. New York: Oxford University Press, 1989.
- 11 Miranda v. Arizona, 384 U.S. 436, 475-76 (1966).
- 12 Johnson v. Zerbst, 304 U.S. 458, 464 (1938).
- 13 Estoppel and waiver. Am. Jur. 2d, 1966; 28:§154, at 836.
- 14 Meisel A. The "exceptions" to the informed consent doctrine: striking a balance between competing values in medical decisionmaking. Wisc L Rev 1979;413-488.
- 15 Cobbs v. Grant, 502 P.2d 1 (Cal. 1972).
- 16 Holt v. Nelson, 523 P.2d 211, 219 (Wash. App. 1974).
- 17 Kaimowitz v. Michigan Dept. of Mental Health, 1 Ment. Dis. Law Rptr. 147 (Cir. Ct. Wayne County, MI 1976).
- 18 Putensen v. Clay Adams, Inc., 12 Cal. App. 3d 1062, 1083-84 (1970).
- 19 Capron AM. Informed consent in catastrophic disease research and treatment. U Penn Law Rev 1974;123:364-434.
- 20 Annas GJ, Glantz L, Katz B. Informed Consent to Human Experimentation. Cambridge, MA: Ballinger Publishing Co., 1977.
- 21 Mohr v. Williams, 95 Minn. 261, 104 N.W. 12 (1905).
- 22 Pratt v. Davis, 118 Ill. App. 161 (1905), aff'd, 224 Ill. 300, 79 N.E. 562 (1906).
- 23 Wolf SM. Conflict between doctor and patient. Law, Med Health Care 1988;16(3-4): 197-203.
- 24 In re A.C., No. 87-609, D.C. Ct. App (Apr. 26, 1990).
- 25 Brody H. Transparency: informed consent in primary care. Hastings Center Rep 1989;19(5):5-9.
- 26 Lidz CW, Appelbaum PS, Meisel A. Two models of implementing informed consent. Arch Int Med 1988;148:1385.
- 27 Kapp MB. Medical empowerment of the elderly. Hastings Center Rep 1989;19(4): 5-7.
- 28 Brock DW, Wartman SA. When competent patients make irrational choices. New Engl J Med 1990;322:1595-1599.



Why Doctors Recommend Us For House Calls.

Temporary HeroesSM When a patient needs continued care after discharge, doctors count on INTERIM HEALTHCARESM services. As one of the nation's oldest and largest providers of qualified specialists, INTERIM HEALTHCARESM services represent a complete range of professional nursing and technical disciplines. From home care to long- and short-

term office staffing, we offer the total flexibility to satisfy every level of care. JCAHO accreditation and an extensive qualifications and screening process reflect our commitment to stringent standards. When your patients are counting on you, count on the INTERIM HEALTHCARESM team to make house calls.

Int-erim
HEALTHCARESM

Formerly Medical Personnel Pool®

JCAHO Accredited

Asheville 704-253-0301 • Ahoskie 919-332-7665 • Chapel Hill 919-929-4396 • Charlotte 704-372-8230 • Clinton 919-592-9011 • Dunn 919-892-5400 • Durham 919-493-7575
Elizabeth City 919-338-7665 • Elizabethtown 919-862-8790 • Fayetteville 800-849-6144 • Gastonia 704-861-1156 • Greensboro 919-294-2900 • Greenville 919-758-7665 • Hendersonville 704-693-1449
Hickory 704-324-2121 • High Point 919-887-1272 • Jacksonville/Morehead City 800-452-8241 • Kitty Hawk 919-261-7665 • Laurinburg 919-277-4272 • Lenoir 704-754-0211 • Lumberton 919-738-1628
Pinehurst 919-295-2211 • Raeford 919-875-5833 • Roanoke Rapids 919-537-1500 • Rocky Mount 919-985-1867 • Raleigh 919-872-7100 • Sanford 919-774-6026 • Southport 800-598-9168
Troy 919-576-3700 • Wallace 919-285-6063 • Whiteville 919-642-2106 • Wilmington 800-653-3171 • Wilson 919-243-7665 • Winston-Salem 919-768-6997

FREEDOM FROM PAIN!

**Extra strength pain relief
free of extra prescribing
restrictions.**

- Telephone prescribing in most states
- Up to five refills in 6 months
- No triplicate Rx required

**15 years of proven
clinical experience**

- Effective central and peripheral pain relief.
- Excellent patient acceptance—nausea, sedation and constipation have rarely been reported.¹
- Four to six hours of extra strength pain relief from a single dose.
- The heritage of VICODIN®* — over one billion doses prescribed.²
- The 8th most frequently prescribed medication in America.²

vicodin ES 

(hydrocodone bitartrate 7.5mg [Warning: May be habit forming]
and acetaminophen 750mg)

**Extra strength pain relief
you can phone in.**

¹ Data on file, Knoll Pharmaceutical Company

² Standard industry new prescription audit.

* (hydrocodone bitartrate 5mg [Warning: May be habit forming] and acetaminophen 500 mg)



Maintain control of your patient's pain therapy.

R_x
Specify

*Do not
substitute*

vicodin ES

(hydrocodone bitartrate 7.5mg (Warning: May be habit forming)
and acetaminophen 750mg)

It's your prescription – not a suggestion.

INDICATIONS AND USAGE: For the relief of moderate to moderately severe pain. **CONTRAINDICATIONS:** Hypersensitivity to acetaminophen or hydrocodone. **WARNINGS:** **Respiratory Depression:** At high doses or in sensitive patients, hydrocodone may produce dose-related respiratory depression. **Head Injury and Increased Intracranial Pressure:** The respiratory depressant effects of narcotics and their capacity to elevate cerebrospinal fluid pressure may be markedly exaggerated in the presence of head injury, other intracranial lesions or a preexisting increase in intracranial pressure. Furthermore, narcotics produce adverse reactions which may obscure the clinical course of patients with head injuries. **Acute Abdominal Conditions:** The administration of narcotics may obscure the diagnosis or clinical course of patients with acute abdominal conditions. **PRECAUTIONS:** **Special Risk Patients:** VICODIN/VICODIN ES Tablets should be used with caution in elderly or debilitated patients and those with severe impairment of hepatic or renal function, hypothyroidism, Addison's disease, prostatic hypertrophy or urethral stricture. **Cough Reflex:** Hydrocodone suppresses the cough reflex, as with all narcotics, caution should be exercised when VICODIN/VICODIN ES Tablets are used postoperatively and in patients with pulmonary disease. **Drug Interactions:** Patients receiving other narcotic analgesics, antipsychotics, anxiolytic agents, or other CNS depressants (including alcohol) concomitantly with VICODIN/VICODIN ES Tablets may exhibit an additive CNS depression. The use of MAO inhibitors or tricyclic antidepressants with hydrocodone preparations may increase the effect of either the antidepressant or hydrocodone. The concurrent use of anticholinergics with hydrocodone may produce paralytic ileus. **Use in Pregnancy:** **Teratogenic Effects:** Pregnancy Category C. Hydrocodone has been shown to be teratogenic in hamsters when given in doses 700 times the human dose. There are no adequate and well-controlled studies in pregnant women. VICODIN/VICODIN ES Tablets should be used during pregnancy only if the potential benefit justifies the potential risk to the fetus. **Nonteratogenic effects:** Babies born to mothers who have been taking opioids regularly prior to delivery will be physically dependent. The withdrawal signs include irritability and excessive crying, tremors, hyperactive reflexes, increased respiratory rate, increased stools, sneezing, yawning, vomiting, and fever. **Labor and Delivery:** Administration of VICODIN/VICODIN ES Tablets to the mother shortly before delivery may result in some degree of respiratory depression in the newborn, especially if higher doses are used. **Nursing Mothers:** It is not known whether this drug is excreted in human milk. Because many drugs are excreted in human milk and because of the potential for serious adverse reactions in nursing infants from VICODIN/VICODIN ES Tablets, a decision should be made whether to discontinue nursing or to discontinue the drug, taking into account the importance of the drug to the mother. **Pediatric Use:** Safety and effectiveness in children have not been established. **ADVERSE REACTIONS:** The most frequently observed adverse reactions include light-headedness, dizziness, sedation, nausea and vomiting. These effects seem to be more prominent in ambulatory than in nonambulatory patients and some of these adverse reactions may be alleviated if the patient lies down. Other adverse reactions include: **Central Nervous System:** Drowsiness, mental clouding, lethargy, impairment of mental and physical performance, anxiety, fear, dysphoria, psychic dependence and mood changes. **Gastrointestinal System:** The antiemetic phenothiazines are useful in suppressing the nausea and vomiting which may occur (see above); however, some phenothiazine derivatives seem to be antianalgesic and to increase the amount of narcotic required to produce pain relief, while other phenothiazines reduce the amount of narcotic required to produce a given level of analgesia. Prolonged administration of VICODIN/VICODIN ES Tablets may produce constipation. **Genitourinary System:** Ureteral spasm, spasm of vesical sphincters and urinary retention have been reported. **Respiratory Depression:** Hydrocodone bitartrate may produce dose-related respiratory depression by acting directly on the brain stem respiratory center. Hydrocodone also affects the center that controls respiratory rhythm, and may produce irregular and periodic breathing. If significant respiratory depression occurs, it may be antagonized by the use of naloxone hydrochloride. Apply other supportive measures when indicated. **DRUG ABUSE AND DEPENDENCE:** VICODIN/VICODIN ES Tablets are subject to the Federal Controlled Substance Act (Schedule III). **Psychic dependence, physical dependence, and tolerance may develop upon repeated administration of narcotics, therefore, VICODIN/VICODIN ES Tablets should be prescribed and administered with caution.** **OVERDOSEAGE:** **Acetaminophen Signs and Symptoms:** In acute acetaminophen overdose, dose-dependent, potentially fatal hepatic necrosis is the most serious adverse effect. Renal tubular necrosis, hypoglycemic coma, and thrombocytopenia may also occur. Early symptoms following a potentially hepatotoxic overdose may include: nausea, vomiting, diaphoresis and general malaise. Clinical and laboratory evidence of hepatic toxicity may not be apparent until 48 to 72 hours post-ingestion. **Hydrocodone Signs and Symptoms:** Serious overdose with hydrocodone is characterized by respiratory depression (a decrease in respiratory rate and/or tidal volume, Cheyne-Stokes respiration, cyanosis), extreme somnolence progressing to stupor or coma, skeletal muscle flaccidity, cold and clammy skin, and sometimes bradycardia and hypotension. In severe overdose, apnea, circulatory collapse, cardiac arrest and death may occur.

Revised March 1992

5890

Knoll Pharmaceutical Company
30 North Jefferson Road
Whippany, New Jersey 07981

BASF Group



The Medical Ethics Teaching Program at UNC-Chapel Hill

Larry R. Churchill, Ph.D.

History

We have been teaching ethics in an explicit and systematic way in the School of Medicine at the University of North Carolina at Chapel Hill since 1975, when Dr. James A. Bryan and I offered an elective for senior students entitled "The Medical Attitude, Human Values and Patient Care." In the beginning we sought only acceptance and a foothold in the curriculum for our modest ethics program. Its survival was assured by a favorable constellation of factors—student interest, the support of key clinical faculty, and financial backing from far-sighted administrators, especially Dr. Merrel Flair, the director of the Office of Medical Studies, and Dr. Christopher C. Fordham, dean of the School of Medicine. Then, in 1978, the creation of the Department of Social Medicine, chaired by Professor Glenn Wilson, provided a base of required curriculum time for ethics and also provided a "critical mass" of humanities and social sciences faculty. We decided to articulate the teaching of ethics in the context of, and in tandem with, the teaching of medical history, sociology, anthropology, law, and economics—a decision that gives the Chapel Hill endeavor an emphasis different from those programs that confine themselves to bioethics per se. This difference is best described by looking at the purposes and structure of the program.

Purposes: Medicine as a Moral Tradition

The teaching of medical ethics at Chapel Hill has three purposes, or goals. The first is to acquaint students with medicine as a moral tradition. Some programs teach ethics as if the discipline began 20 years ago with the contemporary emphasis on bioethics. Yet medical ethics is at least 2,500 years old, claiming its origins in the Hippocratic tradition. UNC students continue this tradition when they recite a

modern version of the Oath of Hippocrates as they receive their M.D. degrees. Morally speaking, it is this Oath, not their technical skills, that sets them apart as physicians, for in reciting the Oath these graduating students pledge themselves to a professional practice and to a life of honorable service. In one portion of the Oath, graduates affirm that the well-being of the sick will be more important to them than monetary rewards; in another portion they pledge a lifetime of devotion to the retention of scientific competence. These are substantial affirmations, made publicly before faculty, family, and fellow graduates.

Our teaching focus on the Hippocratic Oath has led in part to the renewal of interest in it by graduating classes, and their subsequent efforts to revise it for the modern day. Dr. J. Wesley Boyd's "The Physician's Oath and Its Apology" (NC Med J 1992;53:623-4), though not typical in content, is an example of the sort of rethinking encouraged by such teaching. For the past two years graduating students at Chapel Hill have marked yet another turning point in medicine's moral self-understanding by including in their revised Oath the following affirmation: "I will work for the day when all persons have equal access to basic medical care."

Pledges such as the Hippocratic Oath are routine for medical graduates, but they are not usually a part of the commencement exercises in law, engineering, business, ministry, or other "professions." Getting students to reflect on why this is so, and on what makes medicine morally distinctive, is a primary goal of teaching medical ethics. Practitioners who are ignorant of their moral tradition are likely to reiterate the mistakes that led to the creation of various oaths, codes, and principles of medical ethics.

Our aim is to ensure that a critical acquaintance with the values of the medical profession is a part of the students' training. To that end our curriculum typically includes a sampling of the oaths, codes, and principles that physicians have devised throughout history. Each gives us a reading of medicine's self-understanding. The Nuremberg Code, for example, marks the awareness of ethical pitfalls in research with human subjects. And the 1847 AMA Code, the first official American expression of medical ethics, includes a section on the reciprocal obligations of patients to their

Dr. Churchill, guest editor of this issue, is professor and chair of the Department of Social Medicine, University of North Carolina, CB# 7240, Wing D, Chapel Hill 27599-7240.

physicians. This survey of codes shows the need to appreciate ethical thinking in historical and in social context, which is why the UNC ethics curriculum is part of a larger social medicine curriculum, taught by philosophers and clinicians, and by historians, sociologists, anthropologists, and lawyers as well.

The Skills of Ethical Reasoning

A second goal of our program is to improve the ethical reasoning skills of our students. This goal is very similar to East Carolina University's decision (described by Dr. Loretta M. Kopelman on page 409) to teach a method of inquiry and to emphasize the tools of reasoning.

Ethics in medicine is created in part by medicine's own traditions, but also by the more general moral traditions that have their source in political, religious, or social movements. Those general ways of moral thinking and reasoning often influence, and sometimes oppose, the traditions of medicine. For example, in the past there has been a paternalistic orientation to a great deal of medical ethics. This has been balanced during the past 20 years by an increasing emphasis on patient self-determination springing from an emphasis on political freedom and an appreciation for cultural diversity in the U.S. In the care of patients freedom and respect for diversity is reflected in items and issues such as the use of informed consent (in experimental and therapeutic contexts), the emergence and popularity of living wills, and the passage of the 1991 Patient Self-Determination Act. If students are to understand this trend as more than an "assault on medicine," or a challenge to professional prerogatives, they must be acquainted with extra-medical modes of ethical thinking.

The key ingredient in this sort of teaching is an appreciation for difference. Examining the point of view of others is a preface to clarifying one's own, and to choosing an ethical stance self-consciously rather than adopting it from mentors and associates without critical reflection. Alfred North Whitehead's 1924 admonition was never more apt: "The fixed person for fixed duties, who in older societies was such a godsend, in the future will be a public danger."¹ William Osler also warned about the "stamp" that training leaves on professionals, especially physicians; he believed it frequently led to limited vision and narrowness of purpose.² By multiplying the perspectives from which problems and issues are entertained, the Chapel Hill program counterbalances the narrowing of mind that so often accompanies specialized education.

Beyond making students aware of differences of viewpoint, we also teach appreciation for how individuals differ in their ethical reasoning. For example, problems of cost control and access to medical care will have different solutions for the utilitarian, the libertarian, and the "right to health care" advocate. Or, to take another example, Professor Harmon L. Smith's eloquent theological polemic against physician-assisted suicide (on page 378) stands in marked

contrast to the position of Dr. Timothy Quill,³ who works out his defense of this act from a combination of traditional medical norms (alleviating suffering) and modern political norms (that patients should have personal control over their own deaths). Students who learn to see and appreciate the diversity of moral thinking are less likely to be slaves of moral custom, more likely to see their patients' values for what they are, and more self-conscious in adopting a values framework with which they can live over a lifetime of practice. I do not mean to imply the static adoption of a set of values for all time, but rather mental agility and emotional resiliency that will permit them to adapt to new settings as well as to reaffirm older values.

The emphasis on appreciating diversity in order to impart agility and resilience relates directly to Dr. Richard P. Vance's points (on page 415) about the need for cultural literacy among medical students. Cultural literacy is not just handy for cocktail party conversation, it is part of ethical literacy and a necessary part of any professional life that seeks to rise above mere mechanical repetition of technical skills.

The Ethical Problems of Practice

A third goal of our medical ethics program is to provide a basic understanding of problems that are commonly encountered in medical practice. Among these problems we include issues of informed consent, confidentiality, and treatment decisions at the end of life. Cases form a central component of such ethics teaching. For example, teaching about issues of consent is done largely through cases that emphasize appreciating both legal and moral aspects. Teaching the intent of the consent statutes defuses anxiety about the law (often conceived of as a truncheon to enforce behaviors) and allows us to emphasize the role of laws in resolving conflict, clarifying duties, assessing harms, and assigning responsibilities. A typical teaching session on informed consent includes a clinical case, philosophical analyses, a short story, and a review of the North Carolina statute. Our aim is to provide basic information about laws, to see the issues from multiple sides, to reason through the options, and to enable students to justify the position they take in a reasoned (rather than a reactive) way.

Structure

The ethics teaching program at Chapel Hill is integrated into the larger Social Medicine curriculum of years one, two, and four of the undergraduate medical curriculum, and it extends into residency and fellowship training. Throughout the first year, ethics is taught in "Medicine and Society," a course that meets for one-and-a-half hours per week, mostly in seminar discussion groups of 15 students. The aims of the course are: (1) to increase knowledge of how the social and cultural environment affects disease and the experience of

illness for both doctors and patients; (2) to develop a critical understanding of the historical, educational, and ethical forces that shape the professional behavior and lives of physicians; and (3) to increase knowledge of the social, political, and economic forces that influence the organization and delivery of medical services. A diversity of content and style is designed into the course readings, which include patient and physician biographies, social and economic analyses, a "primer" on medical care organization, ethical arguments, literary works, and case studies. Learning what each selection has to offer the (future) clinician and what questions it raises are major aims of the course. Students are consistently encouraged to use the course materials and discussions to better inform their own views, rather than develop a standard "right" or orthodox answer.

In each semester of year two, ethical teaching is included in our "Seminars in the Humanities and Social Sciences." Every student is required to complete a one-semester seminar that offers the opportunity for in-depth exploration of topics or issues introduced in year one. Registration is on a first-come, first-served basis, and each seminar is limited to 12 students. Fourteen seminars are offered each year and vary widely in subject matter. Some are essentially humanities courses and others deal with a central problem, topic, or discipline of the social sciences as related to the medical field. All seminars are clinically related, though none are solely clinically focused. Typically three or more focus directly on ethics; in others, ethical reasoning is one of the multiple skills used to address the central themes.

In year four ethics is a major focus of "Studies in the Medical Humanities," an elective for a dozen highly motivated students offered during the early spring. This full-time, month-long elective combines history, literature, and ethics in an intensive humanities series. Seminar classes meet daily for three-and-a-half hours. During the past few years the students in this course have been instrumental in reformulating the graduation Oath recited by Chapel Hill medical students.

Although the Chapel Hill program has avoided the model of the ethics "clinical consultant"—complete with beeper and on-the-spot advice for clinical cases—several members of the Social Medicine faculty are actively involved in case conferences, rounds, and the seminars of various clinical departments, including Medicine, Pediatrics, Anesthesiology, Obstetrics and Gynecology, and Surgery. Moreover, many post-doctoral fellowship programs at UNC have an ethics component, including the Robert Wood Johnson Clinical Scholars Program, the Primary Care Fellowship Program, the Rockefeller International Training Program in Epidemiology, and the Preventive Medicine Residency.

Finally, the work of the Ethics Committee of UNC Hospitals should be noted in terms of its educational mission. For several years the committee has held a monthly forum on current ethical issues and, on request, conducts short courses in ethics for special groups, such as the medical

intensive care nurses. Social Medicine faculty with expertise in ethics are routinely involved in these endeavors.

Thoughts on Ethics Programs

The UNC program differs in some ways from others described in this issue, but I should emphasize that there is no one right way to teach ethics. A variety of approaches and methods can be successful. Each program must represent an adaptation to local circumstances, to available faculty, and to the location and amount of curricular time, as well as to the educational philosophies and the larger aims of the institutions in which they reside. Still, some program components seem essential. Among these I would list a strong academic base, a "critical mass" of well-trained people, the involvement of clinical faculty, required curricular time, and an educational philosophy that demands high-caliber work and respect of the students and the values they bring to their inquiry. □

References

- 1 Whitehead, AN. *Science and the Modern World*. New York: Free Press, 1925, p 196.
- 2 Osler, W. *The Master-Word in Medicine; A Study in Rhetoric*. Roland, CG (ed). Springfield, IL: Charles C. Thomas, 1972, p 27.
- 3 Quill, TE. Death and dignity: a case of individualized decision-making. *N Engl J Med* 1991;324:691-694.

CSS's \$100,000 Rebate Offer!

CSS, Inc., a N.C. developer of software for the medical profession exclusively for the last ten years, makes this offer—Be the next medical practice in your county to purchase or lease the MediScan® II office management computer system and receive a rebate check for \$1,000. Buy new equipment. Take a needed vacation. The \$1,000 is yours to do as you please.

All 100 counties in North Carolina are eligible for a \$1,000 rebate. This offer ends December 31, 1993. For details, call Deeb Demetry at **800-227-8689**.

CSS, Inc.
311-C Pomona Drive
Greensboro, NC 27407



*Full-term baby
born 8lbs. 2oz.*



*Premature baby
born 3lbs. 3oz.*

Helping Hands

North Carolina's infant mortality statistics are alarming. Expectant mothers must have medical care and counseling. Glaxo has joined with organizations across the state to help provide these resources.

There's still work to do, but healthy babies are the key to America's future, and that's a good place to start.

Glaxo

A Pharmaceutical Research Company

The Medical Humanities Program at East Carolina University

Loretta M. Kopelman, Ph.D.

The East Carolina University School of Medicine graduated its first class in June 1981. Three years earlier, in 1978, I had been hired to begin the medical humanities program within the Department of Pediatrics. The program grew with the new school, becoming an independent program in 1982 and a department in 1984. We use the term "medical humanities" to signify our interest in all humanities disciplines that relate to medicine. Our emphasis, however, is on philosophy (including ethics), history, law, and literature.

Developing a humanities department in a medical school presents unusual challenges. Our program grew quickly because it was encouraged by the dean and many of the senior faculty who wanted to integrate humanities into medical education. Some of the basic science and clinical faculty had already taken bioethics courses, so there was fertile ground in which the program could grow. Now we have five full-time faculty in our department and have had several visiting professors join us to provide our faculty with release time for research and other projects.

Currently, the program provides more than 52 contact hours with medical students in the required curriculum, and also provides fourth-year elective courses that are well subscribed (about half of the members of the graduating class take one or more). In addition, we have programs for residents, fellows, basic science Ph.D.s, and faculty.

Early Crucial Decisions

In the first year of the program, 1978-1979, we made five crucial decisions with the support of the dean and the curriculum committee.

1. We would introduce humanities courses during the pre-clinical curriculum as a base to build on in the

clinical years. This decision was made after a debate about where teaching of the humanities would be most effective. Some argued that we should integrate humanities teaching entirely into other, existing courses. However, because medical humanities teaching (especially of ethics and philosophy) involves methods of inquiry that are unfamiliar to most students, integration would have been difficult unless students had been taught these methods of analysis beforehand. Moreover, continuity of learning, essential to this teaching, would have been extremely difficult to establish by means of lectures or seminars scattered here and there in a variety of courses.

The program is now allotted a total of 52-54 required contact hours—20 during the first-year course, 24 during the second-year course, and eight to 10 hours during the third year. Most of our initial efforts in the medical humanities program were dedicated to developing these required courses.

2. We would develop a humanities program that provided continuity from year to year throughout undergraduate and residency training. Even in the first year, the program expanded beyond what one person could handle. Fortunately, a site visit by representatives from the Institute on Human Values in Medicine helped to convince the dean that we needed another faculty member. We sought the best person we could find, requiring only that the candidate have a doctorate in a humanities discipline, and screening applicants not only for their academic qualifications but also for indications that they could work well with medical students and faculty. Thereafter, the carefully documented growth of the teaching, service, and research activities of our program has helped justify additional staff. At present we have five full-time faculty members, three of whom have been granted tenure and promoted to full professor by the medical school; two have a Ph.D. in philosophy; two, a Ph.D. in history (one of whom also has a law degree); and our most recent colleague has a Ph.D. in health policy. We also include in our curriculum activities involving literature, drama, social policy, and other humanities disciplines. Physicians and basic science faculty are involved in all aspects of our program. We preserved time for research as we built our program, enabling the faculty to contribute to scholarly journals, and thereby enhancing our standing in the medical school.

Dr. Kopelman is professor and chair of the Department of Medical Humanities, East Carolina University, School of Medicine, Greenville 27858-4354. The Department of Medical Humanities at ECU was one of nine programs featured by *Academic Medicine* in a 1989 issue devoted to "Teaching Medical Ethics." Portions of this paper are adapted from that article and other of Dr. Kopelman's writings on medical humanities.¹⁻³

3. We would arrange for program faculty to team-teach courses with clinical faculty. Members of the clinical faculty eagerly supported and participated in the medical humanities program. For example, the head of Hematology-Oncology sought me out the first week to say he wanted to make the program a success and to help in any way he could. He has team-taught with us each year since.

Team-teaching has proved to be a useful strategy for a variety of reasons. It keeps each course focused on the large number of issues important to the practice of medicine, provides a means for faculty development, brings students in contact with physicians who value the humanities, allows clinicians to show students why theoretical discussions make a difference, and increases our faculty support. Team-teaching is arranged by mutual agreement, and some teaching teams have been intact for years. We learn from each other in our conferences, classes, and committees. Most of us enjoy the different perspectives encouraged by an interdisciplinary program. Many of the faculty who have worked with us are members of the ethics committees at our teaching hospital. All our courses and seminars, however, have at least one instructor whose primary area of specialization is medical humanities and who is a member of our department.

4. We would demonstrate the importance of medical humanities by the way in which the programs and courses were constructed and situated in the curriculum. Two crucial points emphasized the importance of our program: 1) some of the courses were required of all students; 2) the courses were graded just like other courses. The chair of the Department of Medicine argued for this arrangement, saying that it would encourage the school and the students to take medical humanities seriously. We established two required courses in the pre-clinical years and then integrated the rest of the program into the required third-year and elective fourth-year clinical courses.

When we began, there were few medical school programs to use as models. We had to address basic issues and problems of format, topics, and readings—a difficult but exciting process. We found that seminars were effective, and supplemented them with occasional plenary sessions organized around invited patients or other guests. Our guests have included physician-poets and physician-authors, patients who were dying, patients who were participating in clinical trials, and patients who were unable to afford medical care. Whenever we have a patient as a guest, we ask the patient's physician to attend. These sessions are usually informal, with students asking many questions.

To keep seminars from becoming unwieldy, we split the sessions and teach in groups of 10 to 12 students. Weekly readings (which are no more than 10 pages long and take two hours or less to read) are varied, and many come from leading medical journals. These readings form a basis for critical discussion and, along with readings in theory, show the students the importance of the moral and social issues of health care, how these arise in practice, and how to read medical literature more critically. Student grades (using letter grades as do the other courses) are based on short

essays, examinations on the readings (in the first year), and class participation.

5. We would focus primarily on teaching a method of inquiry rather than on answers to questions devised by the faculty. Students need tools to help them identify and work on the kinds of problems presented in the program's courses and encountered in medical practice. In our courses, we encourage students to challenge our or anyone else's view and to formulate and defend other positions if they wish.

Shortly after I arrived, I wrote the following statement summarizing our program's philosophy:

"Humanities disciplines have as their goal broadening our perspectives, fighting dogmatism, and developing critical thought and judgment. In fostering creativity of thought and rigorous examination of methods, problems, and results, the humanities and the sciences are entirely compatible. The difference is that the results of science can (in principle) be tested empirically, while those of humanities are not entirely subject to empirical resolution. It is important to have students recognize this, but equally important for them to see that this does not mean rational discourse in the humanities is not possible. Rather, rational discourse plays as essential a role in the humanities as it does in the sciences. Therefore, the humanities program tries to show students how important but non-empirical claims may arise in medical conflicts. Accordingly, substantive problems are presented in terms of important alternative solutions (and their strengths and weaknesses) in order to develop the critical skills needed to evaluate claims that cannot be resolved entirely through empirical means. Developing these critical skills is valuable in itself and also allows the systematic integration, enrichment, and review of their own concerns. The approach is interdisciplinary, but to win the respect of the students and faculty, any humanities subject must be presented as a rigorous academic discipline. Emphasis is placed on the ethical and social policy problems that arise in the practice of medicine, concerns which, owing to expanding technology, have become very complex."²

Perhaps I should add that approaching problems in the way just described fosters empathy. There are various routes to compassion, one being getting to know and identifying with other people. Hence we have found it valuable to have students meet patients who suffer from some of the problems we discuss. Another way to foster empathy is through critical assessment of one's own views and limitations, including trying to see the problem from "the other side." We look to see whether students attempt to view things from different perspectives; an ability to do this forms an important part of the evaluation of students in medical humanities courses. The students must select and defend a thesis in a short paper, but they must also identify what they view as major limita-

tions of their positions. Students are often surprised to learn that value concepts and assumptions are woven into most "hard" scientific and "objective" medical decisions.

We also try to offer students the tools with which to evaluate moral claims. This requires teaching them that to put forth one's opinion *as moral*. One must be willing to justify an opinion in a certain way,³ that is, be willing to do the following: (1) seek clarity in stating the problem; (2) gather all relevant information; (3) defend choices with reasons; and (4) reconsider views in light of new data. Seeking a moral defense of one's position requires that one not be egotistical, but apply the reasons to all, universally and impartially, even to oneself (the Golden Rule expresses this). One must assess one's reasons critically in relation to legal, social, or religious traditions or other stable views about how we should act or what we should be. One must also be sensitive to moral conflicts or problems, to beliefs about what is compassionate, and to the feelings, preferences, or rights of others.

This method of moral reasoning is our goal, but none of us should claim with certainty that it has been reached. For example, we cannot be certain we have all the relevant data or that our "factual" assessments are uncolored by what we expect or want to find. We teach and use this method of moral or practical reasoning in medical practice by centering it around the following questions:

- 1 What is the moral problem?
- 2 Are there other or better ways to view it?
- 3 What data are relevant? Are you using the best information? How good are your data?
- 4 What are the options?
- 5 What are the likely consequences of the different options?
- 6 What rights, duties, or values are important? If there is a conflict, which consideration carries the most weight?
- 7 What are the weaknesses of your view?
- 8 How would you want to be treated in similar circumstances?

Humanities Education in Years One and Two

The courses taught during the pre-clinical period of the students' education are titled M.S. I and M.S. II "medical humanities" and have the following goals: (1) To review and to enhance student sensitivity to important moral, philosophical, and social issues in medicine and health policy; (2) to reflect on physicians' traditions and responsibilities in developing and implementing health care delivery; (3) to develop critical skills for evaluating the moral and philosophical claims, arguments, and goals frequently found in medicine; (4) to formulate, present, and defend a particular position on a moral issue in health care; and (5) to reflect on the relationships between moral, professional, and legal obligations of physicians.

In 1992-1993 the weekly topics for our required (20 contact hours) first-year course were:

- 1 Introduction: Code and Oaths in Medicine
- 2 What is Medical Humanities?
- 3 Paternalism
- 4 Informed Consent
- 5 Competency
- 6 Truthfulness and Trust
- 7 Confidentiality
- 8 AIDS: Professional Responsibilities
- 9 Decisions at the End of Life
- 10 Death and Dying
- 11 Choosing Treatment for Incompetent Patients
- 12 Handicapped Newborns
- 13 Abortion
- 14 Ethics of Research on Human Subjects: Recent History
- 15 Research on Human Subjects: Regulations and Cases
- 16 Fraud and Misconduct in Science

In 1992-1993 the weekly topics for our required (24 contact hours) second-year course were:

- 1 Health Care in Eastern North Carolina
- 2 Is There a Right to Health Care?
- 3 Cost Containment in Health Care
- 4 National Plans
- 5 When are Treatments Medically Futile?
- 6 Euthanasia and Physician-Assisted Suicide
- 7 The AMA and Health Policy
- 8 The Role of Ethics Committees
- 9 Animal Rights
- 10 Genetics
- 11 Abortion and Use of Fetal Tissue
- 12 Maternal-Fetal Issues
- 13 Science, Politics and Gender (RU486, Breast Implants and Eligibility Criteria for Trials)
- 14 AIDS and Conceptions of Illness
- 15 African American Health Care
- 16 Student Voices
- 17 Literature and Medicine

Humanities Education in Years Three and Four

In 1984, we began the systematic integration of humanities into the clinical programs in the form of required third-year seminars (8-10 contact hours). The topics introduced in the first two years are further discussed in small groups for one or two sessions of two hours each during the regular clerkships in pediatrics, internal medicine, and family medicine. Although the formats and times differ somewhat according to instructor and department, we team-teach with clinicians and the students usually identify each topic for discussion. Typically they are concerned about issues of death and dying, uncooperative patients, unfair aspects of "the system," pain control, and "hot" topics. With two courses already behind them, they are comfortable discussing moral and social issues, and they know how to address such problems. We can make progress because we share a com-

mon language, and it is exciting for the faculty to see how much they have developed. The sharp contrast between our students and those from schools that have no such program is obvious when we hold seminars with residents. In the face of difficult problems, our students know how to structure the issues and do not retreat into dogmatism, situation ethics, extreme relativism, defensive postures, or other untenable approaches.

Our fourth-year elective courses began in 1985; since then 38%-66% of the class has taken them. Fourth-year students can elect from among a variety of month-long courses that include "History of Medicine," "Literature and Medicine," "Law and Medicine," "War and Medicine," "Death and Dying," "Independent Projects in Medical Ethics and Humanities," and "Osler, the Man and his Writings." Some students take more than one humanities elective. In addition to the month-long courses, there is also a three-hour required portion of the fourth-year curriculum for medical humanities that is taught in the classroom during Dean's Month.

Postgraduate Curricula

Ongoing meetings with the residents and fellows in pediatrics, family medicine, emergency medicine, and internal medicine have resulted in the drafting of medical humanities curricula for some of these specialties. Our faculty also participate in rounds, grand rounds, and conferences and serve on the hospital committees on ethics, infant care review, and organ transplant.

Drama Program

Our 1992-1993 budget provides money to support a program in which medical students present stories relevant to medical practice that are adapted to a reader's theater format. For several years our faculty has participated in a similar, statewide, public program supported by outside grant funds. These programs raise important issues of public policy or medical ethics, which students and the public then discuss under the leadership of one of the humanities faculty. In the past four years, ECU has had 28 performances of seven productions involving 45 different students.

Ethics and Research: Humanities and Basic Medical Sciences

In spring 1993, we offered for the first time an ethics course for students working on Ph.D.s in medical sciences. It has 14 sessions and is team-taught with members of the basic science faculty. The objectives of the course include the following: (1) identifying the moral, philosophical, and social concerns associated with scientific research and technology; (2) reflecting on the role of the working scientist

in helping to develop and implement social policies about scientific and technical issues; (3) developing critical skills for evaluating the moral, philosophical, and social claims, arguments, and goals raised by the work of the professional scientist; and (4) exploring the moral, professional, and social responsibilities of the working scientist. Our course syllabus (see Appendix) fulfills new requirements from the National Institutes of Health to teach ethics.

Evaluating the Program

We have found several approaches to evaluation useful: (1) We have students respond anonymously to a standardized, short-answer questionnaire given by the dean's office. (2) We have students write short, anonymous essays during the last class period about what they like, dislike, and wish to see changed in the course. (3) We solicit comments from students who are serving as officers of the class being evaluated. (4) We discuss the courses with program faculty and many other faculty who work with us. (5) We observe our students to see how well they improve in their ability to structure and discuss issues critically.

Based on what we learn from evaluations of the program and on what we judge will keep interest high, we try to vary our readings, topics, and teaching methods at least every year. We work with both basic science and clinical faculty to integrate our topics in a timely and useful manner with their programs. We have been fortunate that they have been so cooperative and enthusiastic; their warm response has been essential in winning the respect of our students for the program. □

***Acknowledgments:** This program has been an interdisciplinary collaboration of many individuals. The author is deeply grateful to her present colleagues: John C. Moskop, Ph.D., Todd L. Savitt, Ph.D., Kenneth DeVille, J.D., Ph.D., Carl Elliott, M.D., Ph.D., and those of the past—Jeffrey Kahn, Ph.D., M.P.H., and Reidar Lie, M.D., Ph.D.—who have worked hard on all aspects of the teaching, research, and service programs.*

My thanks to the many clinicians who have enriched the program, including my husband Arthur E. Kopelman, M.D., Thomas Irons, M.D., James Mathis, M.D., James Peden, M.D., Mary Raab, M.D., and my most recent colleague Chris Mansfield, Ph.D.

The curriculum committee has offered us invaluable assistance. Special thanks to Dean and Vice Chancellor Emeritus William Laupus, M.D., whose insight and encouragement provided the opportunity to build the program. More recently, the new dean and vice chancellor, James A. Hallock, M.D., has given strong support to program efforts.

This article is dedicated to the memory of Spencer O. Raab, M.D., who died on June 22, 1993, and who helped us from the first to build the humanities program.

References

- 1 Kopelman LM. Development of the medical humanities program at East Carolina University. *Academic Medicine* 1989;64:730-734.
- 2 Kopelman LM. East Carolina University School of Medicine. In:

- Human Values Teaching Programs for Health Professionals, TK McElhinney and ED Pellegrio, eds. Ardmore, Pennsylvania: Whitmore Publishing Company, 1981, p 122-126.
- 3 Kopelman LM. How a disagreement over partiality helped form an ethics committee. In: *Ethics at the Bedside*, C Culver, ed. University Press of New England, 1990, p 127-142.

Appendix

Ethics and Research: Humanities and Basic Medical Sciences at ECU School of Medicine

1. Introduction: The Nature of the Scientific Enterprise
 - a. Merton RK. excerpt from *Social Theory and Social Structure*
 - b. Kuhn T. excerpt from *The Structure of Scientific Revolutions*
2. Research Using Animals: Regulation and Case Studies
 - a. Excerpt from USDA Animal Use Regulations
 - b. Case Studies on Animal Research
3. Research Using Animals: Moral and Theoretical Issues
 - a. Beauchamp TL. "The moral standing of animals in medical research"
4. Research with Human Subjects: Background and Federal Requirements
 - a. "The Nuremberg Code"
 - b. World Medical Association, "Declaration of Helsinki"
 - c. Department of Health and Human Services. "Basic HHS policy for protection of human subjects"
 - d. Case Studies on Human Research
5. Research with Human Subjects: Clinical Trial Methodologies
 - a. Kopelman LM. "Randomized Controlled Clinical Trials" in *Encyclopedia of Bioethics, 2nd Ed.*
 - b. Merigan TC. "You can teach an old dog new tricks: how AIDS trials are pioneering new strategies"
6. Research with Human Subjects: Case Studies (hGH)
 - a. Callahan D. "Entitlement to growth hormone"
 - b. Anderson C. "Group asks NIH to stop growth hormone trials"
 - c. "Growth hormone for healthy tots: treating shortness with shots," in *Washington Post*
 - d. Report of the NIH Growth Hormone Protocol Review Committee
7. Cystic Fibrosis Research: Social and Ethical Implications
 - a. Wilfond BS, Fost N. "The cystic fibrosis gene: medical and social implications for heterozygote detection"
 - b. Dodge JA. "Implications of the new genetics for screening for cystic fibrosis"
 - c. Angier N. "U.S. permits use of genes in treating cystic fibrosis," in *New York Times*
8. The Human Genome Project
 - a. Beckwith J. "The human genome initiative: genetics' lightning rod"
 - b. Jeungst E. "Germ line gene therapy: back to basics"
9. Authorship, Editing, and Peer Review: Professional Responsibility and the Publication of Biomedical Research
 - a. Mills JL. "Reporting provocative results: can we publish 'hot' papers without getting burned?"
 - b. Huth EJ. "Irresponsible authorship and wasteful publication"
 - c. Baue AE. "Peer and/or peerless review: some vagaries of the editorial process"
 - d. International Committee of Medical Journal Editors. Guidelines on authorship
10. Fraud, Misconduct, and Irresponsibility in Scientific Research
 - a. Dworkin G. "Fraud and Science," in *Research Ethics*
 - b. Bailar JC. "Science, statistics, and deception"
 - c. Engler RL, et al. "Misrepresentation and responsibility in medical research"
11. Bias
 - a. Rosser SV. "Research Bias," in *Encyclopedia of Bioethics, 2nd Ed.*
 - b. Proctor R. "Neutral Racism," in *Racial Hygiene: Medicine Under the Nazis*
12. FDA: Science and Politics
 - a. Kessler DA. "The basis of the FDA's decision on breast implants"
 - b. Angell M. "Breast implants—protection or paternalism"
 - c. Fisher J. "The silicone controversy—when will science prevail?"
13. Patenting, Commercialism, and Conflicts of Interest
 - a. Goldman AH. "Ethical issues in proprietary restrictions on research results"
 - b. "Biologist's speedy gene method scares peers but gains backer," in *New York Times*
 - c. Ashford NA. "A framework for examining the effects of industrial funding on academic freedom and the integrity of the university"
14. The Social Responsibility of Scientists
 - a. Polanyi M. excerpt from *Science, Faith, and Society*
 - b. Case examples based on the Asilomar Conference, Scientists' Campaign Against the Strategic Defense Initiative, and the North Carolina Biotechnology Project.

Editor's note: Full references and additional details of Appendix are available from the author on request.

We've Been Protecting Professional Reputations For More Than 50 Years

With the comprehensive insurance program that includes the flexible coverages and unique services doctors in North Carolina value:

- Local claim and risk management services
- The expertise of specialized defense counsel

Put the unique services of The St. Paul behind your professional reputation. And get the financial strength of the insurance company with more than \$13 billion in assets.

Ask your independent insurance agent about The St. Paul. Or call Cherie Turner in The St. Paul's Charlotte Office at (704) 554-1220 or 1-800-432-6684.

After all, your reputation depends on it.



**Yours Deserves The Backing
Of A Multi-Billion Dollar Company**

The St Paul

St. Paul Fire and Marine Insurance Company

Cultural Literacy of Professional Students

Richard P. Vance, M.D., Robert W. Prichard, M.D., and Charles King, M.D.

Public accountability is a major responsibility of professional ethics.^{1,2} In a polyglot nation, however, public accountability is difficult to achieve because there are so many different, often conflicting, individual and group interests—people who speak different cultural “languages.” A professional education should prepare students to serve responsibly their morally and culturally heterogeneous patients, clients, and customers. In order to do this well, professionals must know the basic nature and history of the culture in which they operate. Such a background is also essential for wise participation in the important public debates of our time.

Our experiences in teaching medicine, medical history, and professional ethics have led us to doubt that our students come to us adequately prepared for such responsibility, but empirical justification for this supposition is rare. E.D. Hirsch’s cultural literacy project called our attention to a serious deficit in cultural knowledge among U.S. students,³ but Hirsch’s efforts were aimed at problems in primary education and, apart from our current efforts, only one published report has assessed cultural literacy among professional students.⁴ In 1988, Dr. Charles King reported that a class of fourth-year medical students at the University of Kansas College of Health Sciences could correctly identify only 30.7% of 100 basic cultural literacy items.⁴ We present here the results of an expanded and more detailed version of Dr. King’s survey that we used to evaluate professional students at Wake Forest University, and first-year medical students at the University of Kansas College of Health Sciences.

“A professional education should prepare students to serve responsibly their morally and culturally heterogeneous patients, clients, and customers.”

Methods

We tested a total of 450 first- and second-year medical students, first-year graduate business students, and first-year law students at Wake Forest University. These students had previously attended 163 different undergraduate colleges and universities in 35 states and the District of Columbia. In addition,

we tested 128 first-year medical students at the University of Kansas College of Health Sciences. All students were asked to provide short, specific descriptions of 250 items taken from the *Dictionary of Cultural Literacy* developed by Hirsch et al.,⁵ out of the cultural literacy project. The *Dictionary* provides definitions for approximately 5,000 basic concepts, facts, and historical personalities agreed upon by at least 90% of approximately 100 scholars as being pertinent to 22 subjects spanning the liberal arts and humanities, social sciences, and natural sciences. The most important selection criterion was that the facts and concepts represent basic, nonesoteric information. Tests of cultural literacy, therefore, use criterion-referenced rather than norm-referenced measurements.^{6,7} Cultural literacy items are chosen on the basis that literate people should know all the items. The 250 items selected for our instrument were reviewed, criticized, and ultimately approved by 10 individuals (faculty members in the Undergraduate College of Arts and Sciences of Wake Forest University and physicians at the Wake Forest University Medical Center and at the University of Kansas Health Science Center).

Students were instructed to write their answers as a phrase or a sentence. The most important criterion used in grading was that the student be able to recognize or use the item correctly in context. Grading was performed by a panel of 21 graders using lists of standard definitions refined through discussions with project directors before grading began. Grading was extensively checked for consistency throughout the grading process, and all tests were graded at least twice. In addition to the usual tests for significant differences in group means (such as ANOVA), intergroup

Drs. Vance and Prichard are with the Section of Medical Humanities and Department of Pathology, Wake Forest University Medical Center, Winston-Salem. Dr. King is with the Department of Obstetrics and Gynecology, University of Kansas College of Health Sciences, Kansas City, Mo.

levels of statistical significance were confirmed by multiple comparison testing using the Scheffé test. Unless otherwise indicated, we considered significant any probability of 0.05 or less that differences had arisen by chance.

Results

Even though testing was voluntary, over 99% of the student popu-

Table 1. Responses of professional students at Wake Forest University to 250 cultural literacy questions

	Medical students	Law students	Business students	All students
Number of students	210	144	96	450
Correct responses (%)	28.4% (a)	24.1% (b)	17.2% (c)	24.7%

Scores marked (a) are statistically higher ($p \leq 0.05$) than scores marked (b) which, in turn, are statistically higher than those marked (c).

Table 2. Percentage correct scores on representative items

Adenoids	20%
Amicus Curiae	15%
Book of Common Prayer	10%
Common Law	18%
Double Jeopardy	36%
Duodenum	45%
Gang of Four	11%
Gulag	25%
Jehovah	42%
Managua	44%
Rasputin	19%
Selma	42%
Shylock	12%
Suffrage	36%
Thomas More	8%

Table 3. Some answers we did not expect

1066	"an IRS tax form"
Acrophobia	"fear of acronyms"
Actuary	"a home for birds"
Annunciation	"to speak clearly"
Susan B. Anthony	"sewed the first American flag"
Aquinas	"a Roman god"

lations completed the tests, and also expressed an interest in retrieving their scores. Students were informed in advance that test scores would compare professional school students, creating a modestly competitive atmosphere. Even so, the mean score for the 450 students at Wake Forest University was 24.7% correct (Table 1). Overall, medical students did statistically better than law students, and both law and medical students did statistically better than business students. These differences are most plausibly accounted for by a slight but statistically significant difference in college grade-point averages for each group. However, differences between groups are trivial in the context of such low overall scores.

Table 2 gives examples of several test items and the percent correct scores for each. One advantage of using the short-answer format is that students were forced to generate answers, much as they would in conversation. This was helpful in assessing the knowledge students have available to use, rather than the mere *recognition knowledge* that is assessed in typical multiple-choice tests. Consequently, we received numerous malaprop answers, some of which are listed in Table 3. We found no evidence that students were intentionally trying to be humorous. Randomly selected students confirmed that malaprop responses were intended to be serious answers.

It is noteworthy that *none* of the professional school students scored higher than 36% correct in any of the liberal arts or humanities subjects (Figure 1). In the social sciences, the highest group score was the law students' 35.9% in American politics. In the natural sciences, medical students scored much higher than the other groups, but still were able to write acceptable answers for only 52.9% of the medicine and health items, and 60.3% of the biological sciences items.

The findings supported our suspicion that short-answer tests, by requiring expression of knowledge, measure not only cultural literacy, but also writing skills. We were constantly impressed with the economy of words the best students used to express the meaning of a wide diversity of items. We also noted a high frequency of poorly worded or ambiguous phrases and sentences used by the worst students, even in the subjects in which they had previously majored.

There were no statistical differences when results were analyzed by race, country of birth, political party affiliation, religious affiliation, college type attended (public, private independent, religiously affiliated), college class rank, plans to specialize, previous doctoral degrees, or the number of extracurricular activities. However, we did find some interesting distinctions based on other demographic factors. For example, men did significantly better than women (26% vs. 22% correct). Students between 30 and 40 years old did significantly better than students between 20 and 30 (34% vs. 24%). Students who described themselves as liberal did statistically better than those who called themselves conservative (28% vs. 23%). Liberal arts or humanities majors did statistically better than natural science and social science majors (32% vs. 26% vs. 21%). Students who reported reading more than 10 books in the previous year did statis-

tically better than those who read three or fewer books (30% vs. 20%).

Even though the 450 students tested at Wake Forest University represent more than 160 colleges, some might argue that the findings were biased by institutional selection or regional factors. For that reason, we gave the same test to 128 first-year medical students at the University of Kansas College of Health Sciences. The Kansas students scored 13.8% correct (statistically lower than the Wake Forest University students) although the mean college grade-point average of the Kansas students was statistically *higher* than any professional school group at Wake Forest.

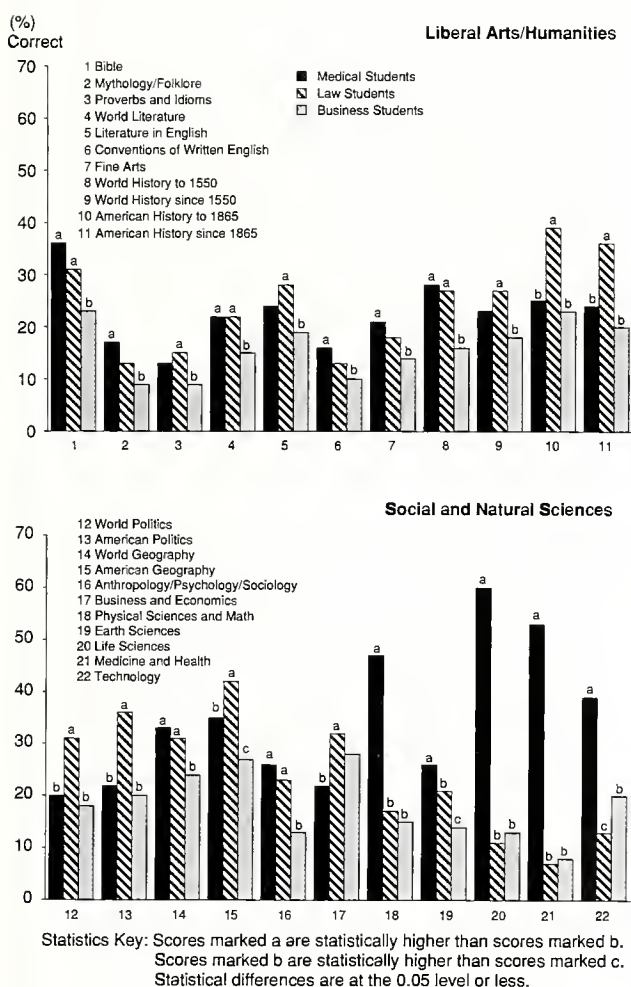
Discussion

The connections between cultural literacy and ethical problem-solving, moral character, and related issues are complex. That a student can identify Jane Addams, *Civitas Dei*, etc., does not lead necessarily to any specific consequences. Good people can be either informed or ignorant; intelligent,

well-informed people can be either benevolent or malevolent. Knowledge and goodness may be related, but not necessarily. Knowledge can, perhaps, help good people act more wisely. Nevertheless, even if our students become more culturally literate, we will still need to concern ourselves about their preparation for the ethics of professional practice.

“Knowledge and goodness
may be related, but not
necessarily.”

Figure 1: A comparison of the scores of students in liberal arts/humanities and social and natural sciences



Cultural literacy, as Hirsch uses the term, reflects the knowledge participants take for granted during public discourse, and is related to the basic information we use in reading and learning. The ability to identify cultural literacy items does *not* indicate higher intelligence. Instead, it indicates a familiarity with concepts that teachers may use to explain new information, or that one may encounter in reading about almost any subject.

Contrary to the criticisms of some,⁸⁻¹¹ Hirsch is not a neoconservative, attempting to reintroduce a “great books” program.^{12,13} Scholars who argue for a great books curriculum often have in mind a core curriculum that defines educational goals toward which all students should aspire. In contrast, Hirsch argues for a floor, not a ceiling—a minimum level of literacy upon which one may build educational ideals. In other words, cultural literacy provides most of the fundamental vocabulary needed *to begin* to make sense of a subject—and hence the importance of cultural literacy to professional education. One important goal for all professional educators is to produce students who will be life-long learners. Cultural literacy concepts provide the basis by which students at any level can learn more easily from lectures, symposia, television programs, books, journals, etc.

Another important reason for focusing on cultural literacy of professional students is the pluralistic environment in which they will practice. Patients, clients, and customers from varied cultural backgrounds create challenges to effective communication. Many problems facing the professions today stem from the uncertainty a pluralistic environment creates. Cultural literacy provides the foundation for educating professionals who can adapt to changing cultural backgrounds.

Some critics have charged that Hirsch’s cultural literacy project is flawed because they consider it to be bound to the presuppositions of Western culture.¹⁵⁻¹⁹ Hirsch has made it quite clear that his project is not closed to non-Western cultures, or to the importance of race, class, and gender issues.^{3,20,21} Indeed, the cultural literacy dictionary includes a wide range of facts, persons, and events that are directly relevant to these so-called *non-traditional* con-

cerns. We submit that everyone should be concerned that only 6% of women knew Jane Addams, 48% recognized Susan B. Anthony, 24% could identify Betty Friedan, 48% could define suffrage, and only 13% knew the meaning of primogeniture. On these items, women scored only slightly better than men. Similarly disturbing findings were noticed regarding items of significance to racial minorities. For example, only 48% of black students correctly defined abolitionism, whereas 59% of white students provided a correct definition; 26% of blacks defined Appomattox Court House (versus 57% of whites); On the other hand, 52% of blacks knew the significance of the Brown decision (versus 34% of whites); 35% of blacks could identify the Dred Scott decision (versus 16% of whites).

These findings point to a central concern of Hirsch's project—that students do not know enough factual information about our culture. The problem is not that students are indoctrinated into Western culture, but that they are not indoctrinated enough. Our educational system focuses too much on the acquisition of skills, and not enough on facts.³ Hirsch is not, of course, encouraging the rote memorization of facts. Cultural literacy is not merely a list. But skills cannot help us communicate with one another if we don't understand the facts that define the basic nature and cultural history of our conversation partners.

Our findings are especially important in light of recent efforts to "balkanize" American education along ethnic and gender lines.²² (Incidentally, only 4% of our test-takers could define balkanization!) There are already far too many barriers between professional and lay people, and between professionals in law, medicine, and business. If ethnic and gender divisions are allowed to generate even more constraints, our hopes for fruitful public discussion can hardly be high.

Finally, we are realists about our role in the education of professionals. Our study indicates that professional schools currently inherit students who are not adequately prepared to meet the highest responsibilities of being a professional in a pluralistic society. Professional schools alone cannot make up deficits in cultural literacy. Professional school courses in ethics, law, and history can help, but they cannot replace adequate preparation in high schools and colleges. We believe all professions have an obligation to promote effective education of culturally literate students. □

Acknowledgments: The authors thank Gwendie Camp, Debbie Parker, Ron Wright, Robert Walsh, Brook Saladin, Peter Peacock, John McKinnon, John Tolmie, and Richard Janeway for their help, consultation, coordination, and constructive criticism during this project.

References

- 1 Kultgen J. Ethics and Professionalism. Philadelphia: Univ. Penn. Press, 1988.
- 2 Vance RP. Reconstructing the public: interprofessional ethics in the Academy; in Stolte H (ed): Bioethical Issues in Biomedical Science. Boston: Kluwer Press, 1993. (in press)
- 3 Hirsch ED. Cultural Literacy. Boston: Houghton Mifflin, 1987.
- 4 King CR. Cultural literacy of fourth-year medical students. J Med Educ 1988;63:919-921.
- 5 Hirsch ED, Kett JF, Trefil J. The Dictionary of Cultural Literacy. Boston: Houghton Mifflin, 1988.
- 6 Glaser R. Instructional technology and the measurement of learning outcomes: some questions. American Psychologist 1963;18:519-521.
- 7 Linn RL (ed): Educational Measurement, third edition, 1989;140,479.
- 8 Law JK. Bloom, Hirsch, and Barthes in the classroom: negotiating cultural literacy. Freshman English News 1988;17:33-36.
- 9 Apple MW. Curricula and teaching: are they headed toward excellence? NASSP Bulletin 1988;72(509):14-25.
- 10 Booth WC. Cultural literacy and liberal learning: an open letter to E.D. Hirsch, Jr. Change 1988;20:10-21.
- 11 Trimbur J. Cultural literacy and cultural anxiety: E.D. Hirsch's discourse of crisis. J Teach Writ 1987;6:345-355.
- 12 Hirsch ED. The paradox of traditional literacy: response to Tchudi. Educ Lead 1988;45:74-75.
- 13 Hirsch ED. "Cultural literacy" does not mean "core curriculum." English Journal 1985;74(6):47-49.
- 14 Hirsch ED. Cultural literacy does not mean a list of works. ADE Bulletin 1986;84:1-3.
- 15 Anson CM. Book lists, cultural literacy, and the stagnation of discourse. English Journal 1988;77:14-18.
- 16 Otto W. Research: puttin' on the Ritz. Journal of Reading 1988;31:674-677.
- 17 Tucker JL. President's report: profession's great debate. Soc Stud Prof 1988;90(Jan-Feb):2.
- 18 Sledd AE, Sledd JH. Success as failure and failure as success: the cultural literacy of E.D. Hirsch, Jr. Written Communic 1989;6:364-389.
- 19 Giddings LR. Beyond E.D. Hirsch and cultural literacy: thinking skills for cultural awareness. Community Review 1989;8:5-13.
- 20 Hirsch ED. Cultural literacy: let's get specific. NEA Today 1988;6(6):15-21.
- 21 Hirsch ED. The primal scene of education. New York Review of Books 1989;(March 2):29-35.
- 22 Ravitch D. Multiculturalism: e pluribus plures. American Scholar 1990;59:337-354.



B & B XRAY

Because It's Your Image That Counts

B & B X-Ray, Inc.
704/845-8521 • 800/447-XRAY

We are proud to be among the finest medical supply dealers in the United States to be awarded this Certification by Kodak's Health Sciences Division. It certifies that:

1. Our key Service Representatives have been fully trained in the **KODAK IMAGEWATCH** Program to provide world-class service and support for KODAK X-OMAT Processors; and
2. We fully support the **KODAK IMAGEWATCH** Program's total commitment to set new world standards in the quality and value of Kodak's medical diagnostic imaging products, systems, services and support programs.



CERTIFIED FOR MEETING HIGHER QUALITY STANDARDS IN MEDICAL DIAGNOSTIC IMAGING SERVICES AND SUPPORT.

We've been defending doctors since these were the state of the art.



Turn of the century trephine for cranial surgery and tonsillotome for removing tonsils.

These instruments were the best available at the turn of the century. So was our professional liability coverage for doctors. In fact, we pioneered the concept of professional protection in 1899 and have been providing this important service exclusively to doctors ever since.

You can be sure we'll always offer the most complete professional liability coverage you can carry. Plus the personal attention and claims prevention assistance you deserve.

For more information about Medical Protective coverage, contact your Medical Protective Company general agent.

**THE
MEDICAL PROTECTIVE COMPANY**

FORT WAYNE, INDIANA

Stuart Mitchelson
Suite 450, 10722 Carmel Commons Boulevard, Pineville, NC 28226
(704) 541-8020 or (704) 541-8021
(800) 633-2285

Robert Dowdy, J. Michael Luther
Suite 230, 2000 Regency Parkway
Cary, NC 27511, (919) 467-8370
(800) 633-2285



Continuing Medical Education

September 14

Duke University Medical Center Pediatric HIV Conference

Place: Durham

Fee: \$50 (registration, breaks, luncheon, social hour and CME credit)

Info: Sonja Coble, Wake Medical Center, P.O. Box 14465, Raleigh 27620-4465. 919/250-8547

Guidelines for Continuing Medical Education: The Journal provides free listings of workshops, courses, and other events approved for CME credit. We will run the listing for a maximum of three months prior to the event. Each event must include the following information: date, title, place, number of credit hours, fees, and name, address, and phone number of contact person. Send to: Continuing Medical Education, *North Carolina Medical Journal*, Box 3910 DUMC, Durham, NC 27710; or fax to: 919-286-9219.

September 16-19

Sea Trail Medical Retreat and 10th Aesculapian Sports Classic

Place: Sea Trail Resort, Sunset Beach, NC

Credit: 12 hours Category I, AMA

Info: Beryl Mehurg, Coastal AHEC, 919/343-0161

October 24-27

15th Annual Meeting of the Society for Medical Decision Making

Place: Raleigh/Durham

Credit: 26 hours of Category 1, AMA

Fee: \$299 - member; \$250 - non-member

Info: Maria Gorrick, SMDM, Office of CME, 2300 K. Street, NW, Washington, DC 20037. 202/994-4285, 202/994-1701

Classified Advertisements

OXFORD, NC: 38 year old family doctor needs BC family practitioner to share the practice of 67 year old "ready to retire" partner. Call E.D. Day, M.D., 919/693-8126, 9am to 5pm; 919/693-1715, nights/weekends.

URGENT CARE: Immediate opportunity for FP/GP/IM. Forty hour weeks, competitive compensation, independent contractor status. Stable organization since 1979 with strong commitment to quality urgent care and industrial medicine. Clifford K. Callaway, MD, PO Box 667967, Charlotte, NC 28266. 704/521-5075

Continued on page 422



SPECIALIZE IN AIR FORCE MEDICINE.

Become the dedicated physician you want to be while serving your country in today's Air Force. Discover the tremendous benefits of Air Force medicine. Talk to an Air Force medical program manager about the quality lifestyle, quality benefits and 30 days of vacation with pay per year that are part of a medical career with the Air Force. Find out how to qualify. Call

**USAF Health Professions
Toll Free
1-800-423-USAF**



RALEIGH, NC: Practice opportunity. Join three pediatrician-group in educational, cultural city. Teaching opportunities, consultations at nearby medical centers. Inquire Oberlin Road Pediatrics, 1321 Oberlin Road, Raleigh, NC 27608, or call Mary Anne Clark at 919/828-4747.

WESTERN NORTH CAROLINA: BC/BE internist to join three internists. Pleasant mountain community of 75,000. Send CV to: P.A. Sellers, M.D., 510 7th Ave. West, Hendersonville, NC 28739.

JAMESTOWN: Busy ambulatory care centers here and in Danville, VA, seek BC/BE Family or Emergency medicine practitioners. Excellent salary/benefits package. Send CV: Dr. W. William Ameen, POB 1176, Jamestown, NC 27282.

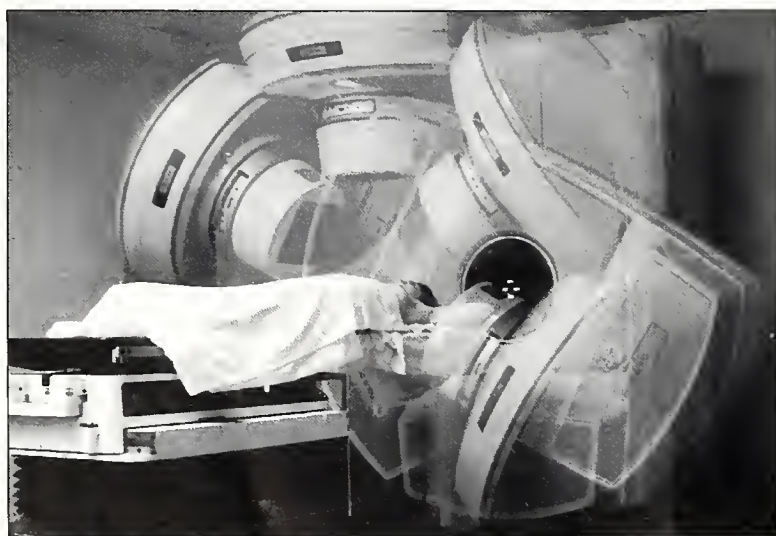
PHYSICIAN'S ASSISTANT - CARDIOLOGY: PA to join solo cardiologist in broad-based clinical practice. Cardiology experience desirable but not mandatory. Experience in internal medicine necessary. Competitive salary and benefits. Practice is satellite office of large cardiovascular group. Town of 25,000 with new 230 bed community hospital with catheter lab. Contact Code #20, Duke University Medical Center, Box 3910, Durham, NC 27710.

THE BANANA PEEL: A business management newsletter containing inside information drawn from physicians' experiences. Call 1-800/SLIPUPS or write The Banana Peel, 2177 Barry Drive, Fort Myers, FL 33907 for your complimentary copy. (ISSN 1069-9449)

FAMILY PRACTICE FOR SALE: Solo family medicine physician to relocate due to wife's career. Practice located in Kinston, NC, town 30,000, county 60,000, 60 miles from beach, 70 miles from Raleigh. Practice is 3 1/2 years old with 1600 active medical records. Fully equipped with computerized billing/ECS capability. Knowledgeable, stable staff. Write or call Ken Pittman, Lenoir Memorial Hospital, 100 Airport Road, Kinston, NC 28501, 919/522-7850 for specific information and referral to physician seller.

*For Classified Advertising rates and information, call the **North Carolina Medical Journal** at 919-286-6412. You may also fax ad copy to 919-286-9219.*

Breast-Conservation Treatment



AT LEAST ONE-THIRD OF ALL BREAST CANCER PATIENTS COULD HAVE LUMPECTOMY FOLLOWED BY RADIATION THERAPY

The American Cancer Society, the American College of Surgeons and the American College of Radiology have agreed that women whose early breast cancer was detected by mammography are candidates for breast-saving treatment. According to new standards, women with small lumps, those with tumors as large as two inches, and even some women with positive nodes may be candidates for this treatment.

Stage for stage, patients treated in this manner have the same longevity and the same freedom from local recurrence as those treated with mastectomy.

For copies of the standards please contact Keri Sperry, American College of Radiology, 1891 Preston White Drive, Reston, VA 22091.



The North Carolina Medical Journal

Recommended Reading for All Physicians and Health Care Professionals



Each month, the **Journal** presents a lively and diverse mix of medical and health care-related topics, from scientific to socioeconomic, plus a special pull-out section written for patients.

Physicians in all specialties as well as health care professionals in other fields read the **Journal** because it provides them with information pertinent to their community, their practices, and their professions.

Subscribe for yourself, or treat a friend or colleague to a 1-year gift subscription by simply filling out the coupon below.

Method of Payment:

☐ \$17 Check or money order enclosed, payable to the **North Carolina Medical Journal**. (NC residents add 6% sales tax)

☐ Charge to: VISA _____
M/C _____

Name on Card: _____

Account #: _____

Expiration Date: _____

☐ New ☐ Renewal

Send to: The North Carolina Medical
Journal, Box 3910, Duke University
Medical Center, Durham NC 27710.

Please start my 1-year subscription*:

My Name _____

Address _____

City/State/Zip _____

Please send a 1-year gift subscription to*:

Name _____

Address _____

City/State/Zip _____

*Please allow 4-6 weeks for delivery of the first issue.

New Members

- James David Abshear (PA), 414 W. Lebanon, Box 1544, Mount Airy 27030
- Anjali Sunder Advani (STUDENT), 731 9th St., Apt. 45, Durham 27705
- Carl Monroe Allen, Jr. (PA), P.O. Box 43, Gibsonville 27249
- Steven Eric Anderson (PA), 1574 Clayton Drive, Charlotte 28203
- Kennan Allan Atkinson (PA), 1701 Old Village Road, Hendersonville 28739
- Robert Edward Baber (PA), 1701 Old Village Road, Hendersonville 28739
- Gregory Louis Beres (PA), Eastern Orthopaedic Group, 622 Medical Drive, Greenville 27834
- James Harvey Carter, Jr. (PA), 3 Mattie Court, Durham 27704
- Sharon Delois Coggin (PA), P.O. Box 2643, Southern Pines 28387
- Michael Ray Cowick (PA), 1202 Cottrell Hill Road, Lenoir 28645
- David Jefferson Crowell (PA), West Anson Medical Clinic, P.O. Box 6B, Polkton 28135
- Earl Cummings (PA), P.O. Box 1328, Lumberton 28358
- Robert Joseph Cutler (PA), 1515 Ian Æs Turn, Kannapolis 28081
- Mars Franklin Davis (PA), Glaxo, Inc., 5 Moore Drive, Occupational Serv., Research Triangle Park 27709
- Thomas Elisher Dunn (PA), 356 Pinners Cove Road, Asheville 28803
- Harry Watson Durgin, Jr. (STUDENT), 2324 Duke University Drive, Durham 27706
- Bonnie Yarbrough Elam (PA), 2405 Churchill Road, Raleigh 27608
- Charles Richard Farabee, Jr. (PA), 7 Covington Place, Greensboro 27407
- Vickie Lynn Farmer (PA), 4001 Final Approach Drive, Fayetteville 28301
- James Elwood Ferrell, III, (PA), 1912 Tradd Court, Wilmington 28401
- Virginia Elizabeth Fulbright (PA), 305-B Village Lane, Greensboro 27409
- Trudie Lee Gardner (PA), 304 Chatham Way, Greensville 27834
- John Kenneth Gartling (PA), 7 Covington Place, Greensboro 27407
- Lynne Bailey Gasperson (PA), 7 McDowell St., Asheville 28801
- Michael Paul Gruber (RESIDENT), 424 Lawndale Drive, Winston-Salem 27103
- Blaine Paxton Hall (PA), 220 Shaw Ave. #4, Southern Pines 28387
- Barbara Terrell Harris (PA), 1615 Fifth St. Drive, N.W., Hickory 28601
- Charles Ronald Hoidal (EM), 2120 Rivershore Road, Elizabeth City 27909
- Ulyssee Hood (PA), 827 Dwain Drive, Fayetteville 28305
- Craig Douglas James (PA), 2170 Midland Road, Southern Pines 28387
- David Ward Jarvis (PA), 100 Tuscarora Drive, Hillsborough 27278
- Willard Dennis Jennings (PA), 1127 Pepperhill Road, Greensboro 27407
- Nathaniel Johnson (PA), 116 Campus Ave., P.O. Box 371, Raeford 28376
- Brenda Kaminski (PA), Rocky Mount Family Medical Center, 1041 Noell Lane, Ste. 101, Rocky Mount 27804
- Mohamed Nour-Eldean Kawam (IM), 303 Maplewood Drive, Goldsboro 27530
- Patricia Mills Klein (PA), 3333 Brookview Hills Blvd., Winston-Salem 27103
- Jonathan Lawrence Langston (PA), 60 Marsh Cove, Shallotte 28459
- Albert Lee Lundquist (PA), 3312 Battleground Ave., Greensboro 27410
- Wade Hampton Marion (PA), 414 W. Lebanon St., P.O. Box 1544, Mount Airy 27030
- Buff McConatha (PA), P.O. Box 5444, Wilmington 28403
- Edward Leon McDowell (PA), 2205 Crosswinds Court, Kannapolis 28083
- Wyman Thomas McGuirt (STUDENT), 901 Goodwood Road, Winston-Salem 27106
- Dale Patrick McIntosh (PA), 1480 Chaffin Road, Woodleaf 28054
- Frederick Lindsey McIntyre, Jr. (PA), 219 Scottlynn Drive, Asheville 28806
- Mathew Patrick Mooney (PA), 168 Hardee Branch Road, West End 27376
- James Lloyd Mountcastle (PA), RR #3, Box 368, Dunn 28334
- Damien O'Neill (RESIDENT), 2643-A MacGregor Downs Road, Greenville 27834
- William Sidney Payne (PA), E.I. DuPont Company, NC Highway #11, Kinston 28501
- Christopher Mark Perkins (IM), 3320 Wake Forest Road, Raleigh 27609
- John Linker Peterson (HEM), 1135 Carthage St., Sanford 27330
- Allan Randall Riggs (PA), 3205 White-wood Way, Castle Hayne 28429
- Thomas Howard Robinson (PA), 5 Goshen Terrace, Wilkesboro 28697
- Samuel Klein Roth (PA), 2717 Lamplighter Drive, Kannapolis 28081
- John Fredrick Sallstrom (PA), 3118 River Road, Morganton 28655
- Jeanna Reid Smith (PA), 721 Green Valley Road, Ste. 201, Greensboro 27408
- David Sevier Spainhour (PA), P.O. Box 2588, Hickory 28603
- Jessica Teague Sparks, (PA), 102 Pomona Drive, Greensboro 27407
- James Joseph Szabo (RESIDENT), 5300 S. Hyde Park Blvd., Chicago, IL 60615
- Thompson Wilder Tisdale, Jr. (PA), Route #2, Box 34, Moravian Falls 28654
- Dwight Anthony Townsend (STUDENT), 754 S. Westview Drive, Winston-Salem 27103
- Dooley LaFayette Underwood, III (PA), Greensboro Orthopaedic Center, 1401 Benjamin Parkway, Greensboro 27408
- James Osborne Vaughn, Jr. (PA), 1910 Hampton Road, Kinston 28501
- Elaine Virginia Walker (PA), Wake Rehab., 3000 New Bern Ave, Raleigh 27610
- Sidney Lawrence Wilson (PA), 303 Old Highway 74, Marshville 28103

Burke

Scott William Baker (AN), 105 Valdese Ave., Morganton 28655

Cabarrus

Jeffrey Francesco (IM), 470 Lake Concord Road, N.E., Concord 28025
Yogesh Kishor Patel (IM), 390 Copperfield Blvd., Concord 28025
Eslie Rolland Phillips (EM), 3710 Sadler Road, Charlotte 28208
John David Reed (IM), 920 Church St., North, Concord 28025
Tony Lee Walden (IM), 390 Copperfield Blvd., Concord 28025

Davidson

Phillip Glenn Marks (U), 10 Medical Park Drive, Ste. #4, Lexington 27292
Michael Lee Patterson (PO), 200 Arthur Drive, Thomasville 27360
Cathy Snyder Riggan (PD) 244 Fairview Drive, Lexington 27292

Durham-Orange

William Stephen Blau, 1130 Tallyho Trail, Chapel Hill 27516
Reginald Lawrence Hall (ORS), Box 3358, DUMC, Durham 27710
Elizabeth Henke (CD), 2609 N. Duke St., Durham 27704
Kim Richard Jones (OTO), 610 Burnett-Womack Bldg., UNC, CB 7070, Chapel Hill 27599
Bruce T. Malenbaum (OTO), P.O. Box 15249, 3901 Roxboro Road, Durham 27704
Angela Sanders-Cliette (RESIDENT), NC Memorial Hospital, Chapel Hill 27599
Judith Ellen Tintinalli (EM), UNC School of Medicine, CB #7594, Chapel Hill 27599

Forsyth-Stokes-Davie

Curtis Austin Anderson (STUDENT), 1587 N.W. Blvd., Winston-Salem 27104
Bonnie Sierra Corley (STUDENT), 2075 Queen St., Winston-Salem 27103
James Milton Merritt, 3314 Healy Drive, Winston-Salem 27103
Thomas Gregory Stovall (OBG), Bowman Gray School of Medicine, Medical Center Blvd., Winston-Salem 27157

Gaston

Annamarie Reddin Collier (DR), 1381 E. Garrison Blvd., Gastonia 28054

Greater Greensboro Society of Medicine

Michael Albert Friedberg (PTH), 612 Pasteur Drive, Ste. 203, Greensboro 27401
Rebecca Smith Kennedy (R), 1302-A Carolina St., P.O. Box 13005, Greensboro 27415

High Point

John Christopher McFadden (FP), 312 N. Elm St., High Point 27262

McDowell

Glenn Edward MacNichol (AN), P.O. Box 1054, Marion 28752

Mecklenburg

Thomas Harold Blackwell (EM), P.O. Box 32861, Carolinas Medical Center, Charlotte 28232
Joseph Paul Coyle (AN), P.O. Box 36351, Charlotte 28236
Jean Paul Gray (OBG), 2015 Randolph Road, Ste. 101, Charlotte 28207
Craig Alan Greene (PDC), The Sanger Clinic, 1001 Blythe Blvd., Ste. 300, Charlotte 28203
Robert Andrew Hendrix (OTO), 1352 Matthews Township Pkwy., Ste. 101, Matthews 28105
John Gordon Morrison (CRS), 2015 Randolph Road, #201, Charlotte 28207
Robyn Lee Stacy-Humphries (R), 17608 River Ford Drive, Davidson 28036

Nash

William C. Dengler (GS), 901 N. Winstead Ave., Ste. 500, Rocky Mount 27804

New Hanover-Pender

Dale Woods Boyd, Jr., (ORS), 1222 Medical Center Drive, Wilmington 28401
Glenn David Gafford (IM), 1202 Medical Center Drive, Wilmington 28401
Rebecca Deal McAfee (PTH), 2131 S. 17th St., Wilmington 28401

Onslow

Scott Richard Johnston (AN), 2234 Perry Drive, Jacksonville 28546

Pitt

Les Forgosh (CD), ECU School of Medicine, Greenville 27858
Mark David Hannis (IM), ECU School of Medicine, Room 389 TA, Greenville 27858
Clifford Calvin Hayslip, Jr., (OBG), ECU School of Medicine, Dept. of OB/GYN, Greenville 27858
Mary Beth Lansing (OPH), 301 Bowman Gray Drive, Greenville 27834
James Arthur Magner (IM), ECU School of Medicine, Dept. of Medicine, Greenville 27858
Marc Anthony Pilato (AN), 3308 Midland Court, Greenville 27834

Stanly

Joseph Ben Mallory (DR), Stanly Memorial Hospital, 301 Yadkin, Albemarle 28002

Surry-Yadkin

Joseph James Baum (FP), Spencer's Inc., P.O. Box 988, Mount Airy 27030

Union

John B. Meade (ORS), Carolina Bone & Joint, 701 E. Roosevelt Blvd., #600, Monroe 28112

Wake

Reza Bahadori (OBG), 3012 Barnsley Lane, Raleigh 27604
Earl Hampton Crumpler, Jr. (AN), Wake Anesthesiology Associates, 1028 Washington St., Raleigh 27605
Mark Earl Leithe (CD), 3020 New Bern Ave., Ste. 410, Raleigh 27610
John Rankin Sinden (CD), 3020 New Bern Ave., Ste. 410, Raleigh 27610
Michael Kevin Smith (PD), 212 Asheville Ave., Ste. 10, Cary 27511

Watauga

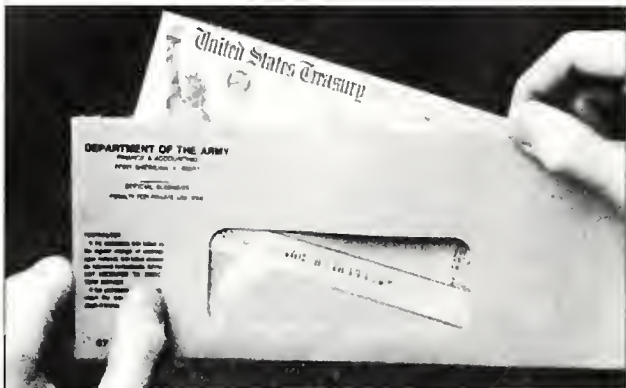
Gary Wayne Pitts (U), 416 Furman Road, Boone 28607

Wilson

James Gregg Sigmon (FP), 4008 NC 42 Highway West, Wilson 27893

SURGEONS: COULD YOU USE AN EXTRA \$9,000?

If you're a resident in surgery, the Army Reserve will pay you a yearly stipend which



could total in excess of \$9,000 in the Army Reserve's Specialized Training Assistance Program (STRAP).

You will have opportunities to continue your education and attend conferences, and we will be flexible about scheduling the time you serve. Your immediate commitment could be as little as two weeks a year, with a small added obligation later on.

Get a maximum amount of money for a minimum amount of service. Find out more by contacting an Army Reserve Medical Counselor. Call:

Collect 919-493-1364

ARMY RESERVE MEDICINE. BE ALL YOU CAN BE.®

Instructions for Authors

Manuscript Preparation

Authors should prepare papers according to the "Uniform Requirements for Manuscripts Submitted to Biomedical Journals" (N Eng J Med 1991;324:424-8) with these exceptions: 1) no abstract is needed; 2) no running title is needed; and 3) measurements must be reported in metric units; use of the International System of Units (SI) is optional.

Text (including Letters to the Editor) should be typed with one-inch margins and double-spaced. Title page should include address, and phone and fax numbers of the corresponding author. Submit two copies or a cover letter and a 3 1/2- or 5 1/4-inch computer disc with text written in MS DOS compatible format (WordPerfect, Microsoft Word, Displaywrite, or ASCII).

Submit illustrations, in duplicate, in the form of color 35mm slides or glossy photographs, or as black-and-white glossy photographs. Label them with author's name, note their position in the text, and indicate image orientation, if necessary. *Do not write on the backs of prints.* Type legends separately. Tables should be typed, double-spaced, one to a page. Tables must have titles and consecutive Arabic numbers.

Minimize references (no more than 15, preferably 10 or fewer). The "Uniform Requirements" cited above contain the format for references. Authors are responsible for the accuracy and pertinence of all citations. Avoid abbreviations entirely if possible, or keep them to a minimum. When used, completely define abbreviations at the first usage in the text.

Manuscript Editing

A medically qualified editor reads all manuscripts, and most are also reviewed by members of the North Carolina Medical Society. Manuscripts are received with the understanding that they are not under consideration for publication elsewhere. Decisions to publish or not are made by the editors, advised by peer reviewers.

We encourage a relatively informal writing style since we believe this improves communication. Imagine yourself talking with your unseen audience—as long as this doesn't lead you to scientific or linguistic inaccuracy. Be brief, clear, simple, and precise.

We edit accepted manuscripts for clarity, style, and conciseness. Except for letters, authors receive a copy of the edited manuscript for approval before publication.

Authors retain copyright to articles published in the *North Carolina Medical Journal*, but the North Carolina Medical Society copyrights the contents of each issue. Requests for permission to reprint all or part of an article must be submitted in writing to the address below and negotiated with the author and editor jointly. Reprinted material must carry a credit line identifying that it appeared in the *North Carolina Medical Journal*. Address manuscripts and correspondence to:

Editor, North Carolina Medical Journal
Box 3910, DUMC
Durham, NC 27710
Telephone 919/286-6410 Fax 919/286-9219

MAGAZINE SUBSCRIPTIONS AT HUGE SAVINGS

North Carolina Medical Society Magazine Program

29 Glen Cove Avenue • Glen Cove, New York 11542 • 516-676-4300

North Carolina Medical Society members qualify for the very lowest subscription rates on popular magazines. The same rates apply both to renewals and new subscriptions. In addition to the lowest rates, we

provide a free renewal service for all your subscriptions, no matter how they were originally ordered. You may take advantage of this service now, even if it is not time to order. Simply send in your mailing labels.

Publication		Issues per yr.	REG. SUBSCR. PRICE	YOUR PRICE	Publication		Issues per yr.	REG. SUBSCR. PRICE	YOUR PRICE	Publication		Issues per yr.	REG. SUBSCR. PRICE	YOUR PRICE
Allure	1 yr	12	15.00	12.00	Gourmet	1 yr	12	18.00	13.50	Popular Science		12	13.94	11.97
	2 yrs	24		22.00		2 yrs	24		25.00	Premiere		12	18.00	11.95
# American Health		10	17.97	12.97	# Good Housekeeping		12	17.97	9.97 *	# Prevention		12	19.97	9.99 *
American Photo		6	19.90	9.95		1 yr	12	20.00	15.00	Redbook		12	14.97	7.50 *
Audio		12	24.00	12.00	GQ	2 yrs	24		28.00	Road & Track		12	19.94	11.97
Automobile		12	18.00	11.95	Harper's Bazaar		12	17.94	8.97 *	Rolling Stone		26	25.95	17.95
# Backpacker		9	27.00	13.50 *	Harper's Magazine		12	18.00	11.97	# Runner's World		12	24.00	12.00 *
Baseball Digest		12	22.00	17.96	# Health		7	18.00	11.97	Sailing World		12	23.94	11.97
Basketball Digest		8	22.00	11.97	Hockey Digest		8	22.00	11.97	# Sassy		12	14.97	9.97
Better Homes	1 yr	12	17.00	13.00	Home		10	19.94	14.97	# Saturday Evening Post		6	15.97	13.97
& Gardens	2 yrs	24		17.00	Home Mechanix		10	13.94	11.97		1 yr	12	15.00	12.00
# Bicycling		11	19.97	10.00 *	# Home Office Computing		10	19.97	11.97	Self	2 yrs	24		22.00
Boating		12	26.00	18.97	House Beautiful		12	17.97	8.99 *	# Sesame Street (ages 2-6)		10	16.97	16.97
Bon Appetit		12	18.00	15.00	Inside Sports		12	22.00	11.97	# Seventeen		12	15.95	14.95
Brides		6	18.00	13.50	# Jack and Jill (ages 7-10)		8	13.95	9.97	Ski		8	11.94	9.97
Car Craft		12	19.94	11.97	Jet Magazine		52	36.00	26.00	Skiing		7	11.94	9.97
Car & Driver		12	19.94	11.97	# Kid City (ages 6-9)		10	15.97	15.97	# Skin Diver		12	21.94	12.95
# Child Life (ages 7-9)		8	13.95	9.97	Ladies Home Journal		12	19.95	12.00	Soccer Digest		6	22.00	11.97
# Children's Playmate (ages 6-8)		8	13.95	9.97	Lear's		12	24.00	12.00	Sport		12	17.94	9.97
Colonial Homes		6	14.97	7.97 *	Life		14	35.00	17.50	# Sports Afield		12	13.97	7.00 *
Columbia Journalism Rev.		6	20.00	11.95	# MacUser		12	27.00	14.97	Sports Illustrated		54	75.06	37.53
Compute		12	19.94	9.97	# MacWorld		12	30.00	17.97	# Sports Illustrated for Kids		12	18.95	18.95
Conde Nast	1 yr	12	15.00	12.00		1 yr	12	15.00	12.00	Stereo Review		12	15.94	7.97
Traveler	2 yrs	24		22.00	Mademoiselle	2 yrs	24		22.00	# Success		10	19.97	9.97
Cosmopolitan		12	24.97	15.00 *	# Men's Confidential		12	48.00	24.00 *	# 3-2-1 Contact (ages 8-14)		10	16.97	16.97
Country Living		12	17.97	9.97 *	Metropolitan Home		6	16.00	9.00	Tennis		12	19.94	9.97
Cruise Travel		6	18.00	9.97	Mirabella		12	24.00	13.95	Time		52	63.07	31.54
Details		10	12.00	9.00	Money		13	35.95	18.99	Tours & Resorts		6	18.00	9.97
Discover		12	27.00	14.98	# Mother Jones		6	18.00	12.00	Town & Country		12	24.00	12.00 *
Ebony		12	16.00	10.97	Motor Trend		12	19.94	9.97	# Travel & Leisure		12	30.00	15.00
Ebony Man		12	16.00	10.97	# Motorboating & Sailing		12	15.97	8.00 *	# Turtle (ages 2-6)		8	13.95	9.97
# Economist		51	110.00	75.00 *	# New Choices		12	21.56	12.97		1 yr	52	39.75	19.89
Elle		12	26.00	18.97	# New Eng Journal of Med.		52	96.00	96.00		2 yrs	104		39.78
Entertainment Weekly		52	51.48	35.88	New Republic		48	69.97	40.50 *	U.S. News		12	23.95	17.95
Esquire		12	15.94	7.97 *	New Woman		12	17.00	12.97	US Magazine		12		17.95
Essence		12	16.00	12.96		1 yr	50	40.00	25.97	USA Today [1 year]		260	107.00	107.00
Family Circle		17	19.98	15.97	New York	2 yrs	100		51.94	Vanity Fair	1 yr	12	15.00	12.00
Field & Stream		12	15.94	11.97		1 yr	50	32.00	16.00		2 yrs	24		22.00
Financial World		26	39.00	19.95	# New Yorker	2 yrs	100		32.00	# Video		12	15.00	7.50
Food & Wine		12	24.00	15.00	Newsweek		52	41.08	27.97	Vogue	1 yr	12	28.00	21.00
Football Digest		10	22.00	14.96	Omni		12	24.00	16.96		2 yrs	24		40.00
Forbes		27	52.00	32.24	# Organic Gardening		9	25.00	16.97 *	'W' Magazine		26	29.90	14.95
Fortune		27	52.95	26.50	Outdoor Life		12	15.94	11.97	# Weight Watchers		12	15.97	13.97
	1 yr	12	15.00	12.00	Outside Magazine		12	18.00	12.00	Windows		12	24.97	14.97
Glamour	2 yrs	24		22.00	# Parenting		10	18.00	9.00	Working Mother		12	9.97	7.95
Golf Digest		12	23.94	15.00	# Parents		12	20.00	12.00	Working Woman		12	18.00	9.97
Golf for Women		6	14.97	11.97	PC Computing		12	24.97	14.97	Worth		6	15.00	9.97
Golf Magazine		12	19.94	13.97	# PC Magazine		22	44.97	24.97	Yachting		12	19.98	16.97
					# Petersen's Photographic		12	19.94	9.97	# YM (Young & Modern)		10	18.00	9.00
					Popular Mechanics		12	15.94	8.00 *					
					# Popular Photography		12	19.94	9.97					
# THESE MAGAZINES HAVE NO TOBACCO ADS										HUNDREDS OF OTHER TITLES				
* BUSINESS CARD OR LETTERHEAD REQUIRED										AVAILABLE - - JUST ASK!				



NCMS MAGAZINE PROGRAM

29 Glen Cove Avenue Glen Cove, NY 11542

NAME _____

ADDRESS _____

CITY STATE ZIP

TELEPHONE ()

CONTACT

☐ VISA

--	--	--	--

☐ M/C No.				Exp. Date
----------------------------------	--	--	--	-----------

☐ Check enclosed payable to: NCMS Magazine Program.

NAME OF PUBLICATION

RENEWAL	YRS	PRICE
---------	-----	-------

TOTAL

Orders: Publishers take from 8 to 12 weeks to start & renew your subscriptions.

Terms: Subscriptions are one year unless otherwise noted.

JS93

Aphorisms of the Month

Daniel Sexton, M.D., Editor

Quacks

Quackery and idolatry are all but immortal.
Oliver Wendell Holmes

For in all times, the opinion of the multitude, witches, old women, and impostors have had a competition with physicians.

Sir Francis Bauer

Quacks are the greatest liars in the world, except their patients.

Benjamin Franklin

Man is a dupable animal. Quacks in medicine, quacks in religion, and quacks in politics know this and act upon that knowledge.

Robert Southey

The number of quacks in a locality is an index to the character of the regular medical profession in that locality.

The followers of quacks are the true causes of quackery.

Anonymous

Moving?

If you are planning to move within the next two months, let us know where we can send you **North Carolina Medical Journal**.

Print your old address here or attach a mailing label:

Name _____

Old Address _____

City _____ Zip _____

Print your new mailing address here:

Name _____

New Address _____

City _____ Zip _____

Cut out and return this form to:

North Carolina Medical Journal

P.O. Box 3910

Duke University Medical Center

Durham, NC 27710

Index to Advertisers

Accuscribe, Inc.	385
Auto Brokers, International	385
B & B X-Ray, Inc.	419
Burroughs Wellcome Co.	365-366
CompuSystems, Inc.	Back cover
The Crumpton Company	Inside front cover
CSS, Inc.	407
Dewees Island, SC	398
Department of Pediatrics, Duke University Medical Center	364
Eli Lilly & Co.	392
Glaxo, Inc.	368, 408
Interim Health Care	404
Knoll Pharmaceuticals	Insert after page 404
Medical Mutual Insurance Co.	372
Medical Protective Co.	420
National Livestock & Meat Board	Inside back cover
NC Practice Management Assn.	363
The Nottingham Company	397
Palisades Pharmaceuticals	377
St. Paul Fire and Marine Insurance Co.	414
U.S. Air Force	421
U.S. Air Force Reserve	382
U.S. Army	397
U.S. Army Reserve	426
Winchester Surgical Supply	361

Breast of chicken



3-oz. cooked serving
of chicken breast

Best of pork



3-oz. cooked serving
of pork tenderloin

Today's Pork: Compare it to chicken for a healthy surprise

You may not have considered pork to be a healthy choice for your patients on fat-modified diets. But today's fresh pork compares surprisingly well to chicken in total fat, saturated fat, cholesterol, and calories.^{1,2*}

Compare pork with chicken^{1,2*}

	Calories	Total Fat	Saturated Fatty Acids	Cholesterol
Chicken Breast, skinless	140	3.0 g	0.9 g	72 mg
Pork Tenderloin, trimmed	139	4.1 g	1.4 g	67 mg
Pork Top Loin Roast (boneless), trimmed	165	6.1 g	2.2 g	66 mg
Center Loin Chop, trimmed	172	6.9 g	2.5 g	70 mg
Chicken Thigh, skinless	178	9.2 g	2.6 g	81 mg

*Table refers to 3-oz. cooked servings.

New study: Pork is now 31% leaner

Pork is leaner today because of significant changes made in breeding and feeding techniques.¹ According to new 1992 official USDA data, fresh pork sold today contains an average of 31% less fat after cooking and trimming than the same pork cuts reported in 1983.¹

Today's pork fits well within the dietary guidelines recommended by both the American Heart Association and the National Cholesterol Education Program. Here's some advice to help patients on low-fat diets enjoy the variety, extra taste, and versatility of pork:

- Choose the leanest cuts. Shop for cuts with "loin" in the name.
- Trim away any visible fat.
- Keep portions moderate (about 3 oz, cooked).
- Prepare by broiling or roasting, and avoid additional fat in preparation.

1. US Dept of Agriculture. *Composition of Foods: Pork Products*, 1992. Agricultural handbook 8-10.

2. US Dept of Agriculture. *Composition of Foods: Poultry Products*, 1979. Agricultural handbook 8-5.

Recommend
TODAY'S PORK

The Other White Meat®

© 1993 National Live Stock and Meat Board in cooperation with the National Pork Board



"The peace of mind I get from CompuSystems is the best testimonial I can give."

R. Bruce Jackson II, M.D., Boone, NC

Computer systems to fit your needs

"I first read an ad for CompuSystems on the back of this same journal. At the time, I had an older computer system that just wasn't meeting my needs. Then I learned that a change in the system to allow electronic filing would be quite expensive without really improving it.

"We invited a CompuSystems salesman by. His demonstration of the system in my office showed me that the enthusiastic references I'd heard weren't just hype. He took time to get to know our practice, and he helped us decide on a configuration that suits our needs. No pressure, just a responsive professional who answered all our questions."

Software that inspires confidence

"Now that we're using the system, I find I'm no longer worrying about the billing

and collections in my office. The age of my receivables has been dramatically reduced. I can design my own reports to extract almost any information from the system. Most of all, I'm confident that the business side of my practice is under control."

Gaining peace of mind

"The peace of mind I get from CompuSystems is the best testimonial I can give. It's an investment that allows me to focus on practicing medicine, instead of on the business of medicine.

"If you'd like to hear more, please feel free to call me or drop by."

R. Bruce Jackson II

- *More physicians in North and South Carolina choose CompuSystems' Medical Insurance Processing and Billing System than any other.*
- *Electronic filing directly to North Carolina Medicare, Medicaid, and BC/BS with no per-claim charges.*
- *Features to maximize return, improve cash flow, and increase productivity.*
- *"One-call" total system support, including on-site hardware service.*



CompuSystems
INC.

Call now for details: 800-800-6472

The
Official Journal
of the
North Carolina
Medical Society
September 1993
Volume 54
Number 9

North Carolina Medical Journal

For Doctors and their Patients

North Carolina Medical Society's 139th Annual Session, November 4 - 7, Charlotte



Our Roots Run Deep.



North Carolina physicians created Medical Mutual to protect the State's health care providers. For 17 years, we've kept the professional liability market open and stable – and we've built a strong company to weather the inevitable storms ahead.

Medical Mutual. We'll be there when you need us.



Medical Mutual Insurance Company of North Carolina

919.872.7117 800.662.7917

Offices in Raleigh, Greenville and Charlotte.

NORTH CAROLINA MEDICAL JOURNAL

For Doctors and their Patients

Published Monthly as the Official Organ of the North Carolina Medical Society

September 1993, Volume 54, Number 9

(ISSN 0029-2559)

EDITOR

Francis A. Neelon, M.D.
Durham
919-286-6409

DEPUTY EDITOR

Edward C. Halperin, M.D.

CONSULTING EDITOR

Eugene A. Stead, Jr., M.D.

ASSOCIATE EDITORS

Eben Alexander, Jr., M.D.
Winston-Salem
William B. Blythe, M.D.
Chapel Hill
F. Maxton Mauney, Jr., M.D.
Asheville
Walter J. Pories, M.D.
Greenville

MANAGING EDITOR

Jeanne C. Yohn
Durham
919-286-6410
fax: 919-286-9219

EDITORIAL ASSISTANT

Jane Whalen

SECTION EDITORS

Eugene W. Linfors, M.D.
Daniel J. Sexton, M.D.

BUSINESS MANAGER

George E. Moore
Raleigh

EDITORIAL BOARD

Margaret N. Harker, M.D.,
Morehead City, CHAIR
MEMBERS
Jay Arena, M.D.
Durham
William B. Blythe, M.D.
Chapel Hill
Jack Hughes, M.D.
Durham
Timothy W. Lane, M.D.
Greensboro
Eugene S. Mayer, M.D.
Chapel Hill
Walter J. Pories, M.D.
Greenville
Robert W. Prichard, M.D.
Winston-Salem
Mary J. Raab, M.D.
Greenville

The Society is not to be considered as endorsing the views and opinions advanced by authors of papers delivered at the Annual Meeting or published in the official publication of the Society.—*Constitution and Bylaws of the North Carolina Medical Society*. Chap. IV, Section 3, pg. 4.

NORTH CAROLINA MEDICAL JOURNAL

Box 3910, Duke University Medical Center, Durham NC 27710, (919-286-6410/fax: 919-286-9219), is owned and published by The North Carolina Medical Society under the direction of its Editorial Board. Copyright©1993 The North Carolina Medical Society. Address manuscripts and communications regarding editorial matters, subscription rates, etc., to the Managing Editor at the Durham address listed above. Listed in *Index Medicus*. All advertisements are accepted subject to the approval of the Editorial Board of the North Carolina Medical Journal. The appearance of an advertisement in this publication does not constitute any endorsement of the subject or claims of the advertisement.

Advertising representatives: United Media Associates, Karl Messerly, 16 Bruce Park Ave., Greenwich CT 06830; 203-661-9702; and Don French, Box 2093, Cary NC 27511; 919-467-8515.

Printing: The Ovid Bell Press, Inc., 1201-05 Bluff St., Fulton MO 65251.

Annual subscription (12 issues): \$17 (plus 6% tax in NC = \$18.02). Single copies: \$2. Second-class postage paid at Raleigh NC 27601, and at additional mailing offices. POSTMASTER: SEND ADDRESS CHANGES TO THE NORTH CAROLINA MEDICAL SOCIETY, 222 N. PERSON ST., RALEIGH NC 27601.

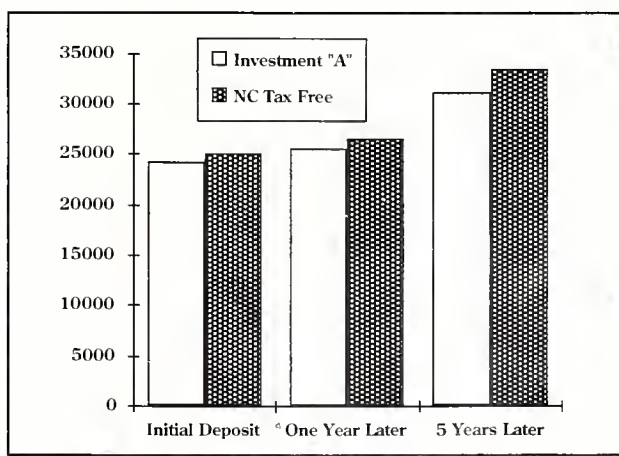
Minimum Tax. Maximum Return.

The North Carolina Tax Free Bond Fund. A No Load Fund.

Many financial experts today are predicting that municipal bonds will be among the safest, most productive investments available this decade. The North Carolina Tax Free Bond Fund provides the tax free benefits of municipal bonds with the added benefit of diversity that you get in a mutual fund.

This unique fund also features NO up front commissions, NO 12b-1 fee and NO deferred sales charge. So you don't start off "in the hole" as you do with traditional "loaded" funds. Minimum initial deposit is \$10,000. Custodian is Wachovia Bank of North Carolina, N.A.

Call 1-800-525-FUND today for more information and a free prospectus.



This chart compares the North Carolina Tax Free Bond Fund with a typical taxable fund with standard 3% up front commission. The chart assumes a \$25,000 investment in each, an 8% return for investment "A" and 6% return for The NC Tax Free Bond Fund. A 35% tax bracket is assumed. The chart is not meant to represent a projection or guarantee of future performance. Read the prospectus carefully before investing or sending money.

North Carolina Medical Journal

FOR DOCTORS AND THEIR PATIENTS

Contents / September 1993, Volume 54, Number 9

On the cover: "Autumn Shadows" (watercolor, 1991), by Bob Pittman of Greenville.

SCREENING FOR DISEASE

- 438 Screening for Ovarian Cancer: Not Worthwhile for Most Patients
Jeffrey G. Wong, M.D., and John R. Feussner, M.D.
- 443 Physicians' Roundtable: Screening for Prostate Cancer Utilizing the Prostate-Specific Antigen (PSA)
Edited by Edward C. Halperin, M.D.

SCIENTIFIC ARTICLE

- 447 Pulmonary Surfactant: A Historical Perspective of How It Came to Be Used in the Treatment of Respiratory Distress Syndrome in the Neonate
Robert S. McGee, Jr., Ph.D., MS III

TOXIC ENCOUNTERS

- 452 Dorna Con Pesce: Scombroid Ichthyotoxicosis
Ronald B. Mack, M.D.

MEDICAL ETHICS

- 455 Conflicts of Interest in Physician Ownership of Medical Facilities: A Clarification of Present AMA and North Carolina Medical Society Policy
John Glasson, M.D.

HEALTH WATCH

- 457 Addictions: Sex Addiction
Carolyn F. Cordasco, Ed.M., CCSW

A PIECE OF A NORTH CAROLINA DOCTOR'S MIND

- 463 Our Country's Mania for Medical Care Is Separating Us from Our Constitutional Heritage
James P. Weaver, M.D.
- 466 An Affordable Package of Medical Care for All Americans Is a Higher Goal than Absolute Freedom for Physicians: A Reply to Dr. Weaver
Stewart Rogers, M.D.

SOCIOECONOMICS OF MEDICINE

- 469 The Return of the Generalist Physician: Initiatives of the University of North Carolina School of Medicine
Peter Curtis, M.D., and Donald Pathman, M.D., M.P.H.

MEDICAL EDUCATION

- 476 My Time as a Minority Student at Meharry Medical College
Lisa Horton Lowe, M.D.

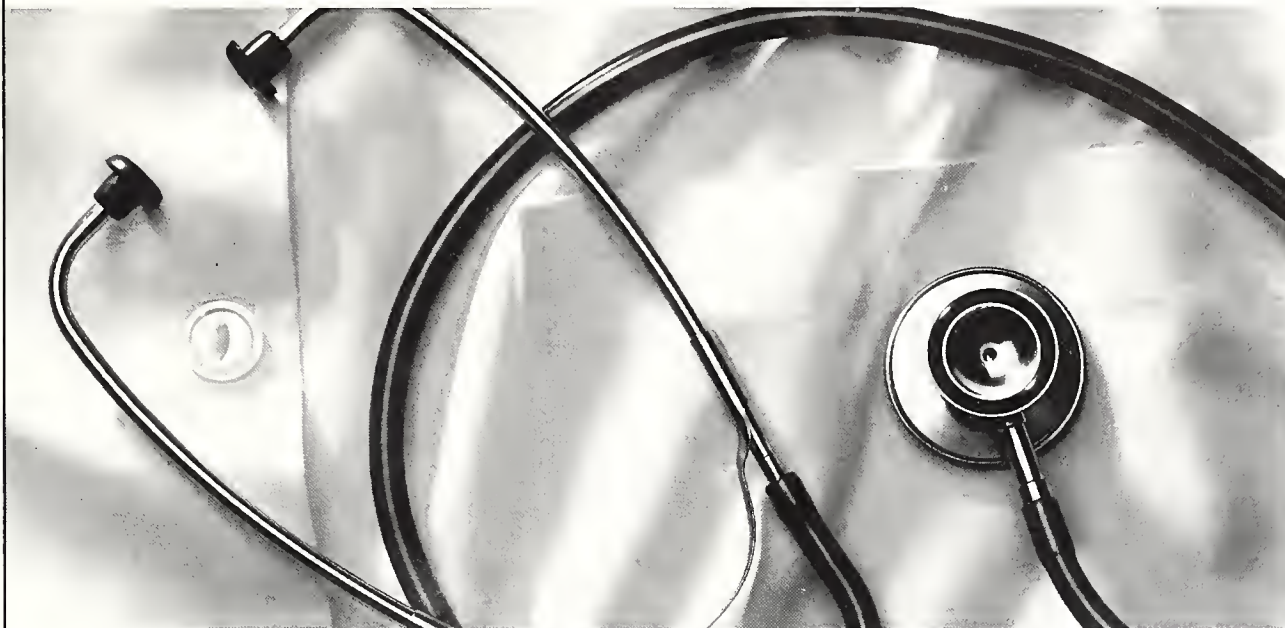
PHYSICIANS' FORUM

- 479 To Encourage or Not to Encourage Our Children to Study Medicine
Edited by Eugene W. Linfors, M.D.

BULLETIN BOARD

- | | | |
|--|-----|------------------------------|
| Letters to the Editor: | 436 | Pearl of the Month |
| 432 A Comment about Physician-Assisted Suicide | 468 | Instructions to Authors |
| Doctors vs Lawyers | 481 | Continuing Medical Education |
| 433 In Appreciation of Dr. James's Abstracts | 483 | Classified Advertisements |
| Screening of Asymptomatic Patients | 485 | New Members |
| 434 Reprint Request | 487 | Subscription Form |
| The Bioethics Resource Group: A Model for | 488 | Aphorisms of the Month |
| Community Bioethics | 488 | Index to Advertisers |

Fiscal fitness.



Improve the health of your practice with more efficiency and less paperwork.

Wouldn't you prefer to spend more time practicing with patients and less time practicing on paper?

IBM is building new, healthier relationships with all kinds of small businesses. Together with an IBM Business Partner who specializes in healthcare industry software, we'll listen to your needs and analyze your current system. Then, working closely with you, we'll create a customized solution that fits your hardware, your budget and your practice. No matter what size practice it is.

From insurance to recordkeeping, payroll to reporting, we'll help you unlog your system's arteries and keep the information flowing. We even have solutions that let you establish direct electronic links with your patients' insurance companies, so that claims and payments can be processed faster. And the IBM system you install today can keep pace with all the growth spurts your practice goes through.

Put IBM and an IBM Business Partner to work for you. And keep your practice in the best of health.

IBM Corporation
Carolinas Trading Area
1 800 662-7900

IBM is a registered trademark of International Business Machines Corporation. ©1993 IBM Corp.

Letters to the Editor

A Comment about Physician-Assisted Suicide

To the Editor:

The case example presented in your section on "Physician Assisted Suicide and Advanced Directives" (NC Med J 1993;54:312-20) very specifically indicated family involvement, but most of the discussion seemed to reflect our heavy American cultural bias to view patients as individuals rather than as parts of complex organisms called families. Suicide almost never impacts only the individual. For this reason I reject the argument of "free will." I support instead the concept of "family will" which, of course, includes the patient. If physician assisted suicide ever comes to be, it should be a family-based decision with expert family interviewers assisting in the process if necessary. This would mitigate the potential negative impact of such an event on family members, as well as on others (such as physicians) whom the family might attack in order to avoid finishing the grieving process and letting go of their loved one.

It seems to me reasonable that the medical profession should provide information to families (not individuals) who are interested in discussing and exploring the meaning of the suicide act. Once we develop facility with such family meetings then we can consider providing more than information. Thank you for furthering understanding by including such a thoughtful discussion in the *Journal*.

Robert E. Winton, M.D.
3643 North Roxboro Rd.
Durham, NC 27704-2763

Deputy Editor Responds:

I agree with Dr. Winton that it is both wise and kind to include interested family members in crucial medical decisions. I would offer two cautions.

First, the interests and desires of family members are not always in concert with those of the patient and, in some instances, may not be in the best interests of the patient. Second, physicians need to meet the needs and desires of their patients and the family members, all in the context of the prevailing culture and laws. It is, however, sometimes not possible to meet all these needs and serve multiple masters. Faced with such a conflict, almost all physicians put the individual patient's wishes foremost. In my opinion this is as it should be.

Edward C. Halperin, M.D.

Doctors vs Lawyers

To the Editor:

I write in response to Tracy Lischer's article in the July 1993 issue of your *Journal* (NC Med J 1993;54:352-6). I find it hard to know where to begin. She says it was her intent and hope to foster a better understanding between the medical and legal communities with such a communication. Her poorly supported comments about the seven myths reveal to me the gulf separating trial attorneys from the real world. As a university-trained, board-certified obstetrician and gynecologist who has been practicing for 10 years, I can whole-heartedly support the comments accompanying Ms. Lischer's paper by Dr. Alexander Easley from Greenville.

I have already been named in four law suits that are clearly seen to be non-meritorious by anyone in the clinical practice of obstetrics and gynecology and yet I must drag myself through the deposition process of these litigations. One will involve my returning to Pittsburgh, Pennsylvania, where I trained, to testify. This, of course, is highly disruptive to my small group practice, and so not only will my family suffer while I am gone, but my partner as well. The costs, both financial and emo-

tional, of non-meritorious law suits are extensive. These law suits are mental hound dogs that follow you into your bedroom or on vacation so that you are constantly harassed by feelings of anger, resentment, and disbelief.

Ms. Lischer is certainly wrong when she says that our two professions are respected. The legal profession, especially the trial bar association, is held in low esteem by the public, lower than at any point in their history. This, no doubt, reflects public awareness of the cost of non-meritorious law suits. Each year the malpractice premiums collected in this country amount to \$4 billion dollars; \$3 billion of those dollars go not to plaintiffs in successfully litigated cases, but to legal fees. And trial lawyers seem to be proliferating in America at an alarming rate. There are more students in law school now than there are practicing lawyers in our country, and already 75% of the world's lawyers reside here. As a result, lawyers will consider non-meritorious cases that only a few years ago would never have been considered.

Instead of learning how to seek the truth, lawyers learn how to sway juries who are totally ignorant of the sophisticated elements and pressures of clinical medicine. Caesarian sections represent 33% of live births in North Carolina. The rate will remain excessive as long as trial lawyers consider it the ultimate in obstetrical care. Lawyers and sympathetic juries, without any training in clinical medicine, are setting the standard of care and undeniably driving the cost of medicine soaring.

I find absurd Ms. Lischer's argument that contingency fees limit the number of non-meritorious cases considered. The abundance of trial lawyers with nothing better to do make it likely that non-meritorious cases will reach

trial. Every obstetrician lives in fear, not of committing malpractice or being negligent in practice but of being held liable for poor outcomes over which he or she has no control. These fears will continue to increase the cost of obstetrical care until significant tort reform occurs.

I feel that Ms. Lischer's article only demonstrates the great distance that still exists between physicians and trial lawyers. Her paper does nothing to help bridge that gap; indeed, in my opinion, it significantly widens it. It seems clear that tort reform will never come from within the trial lawyers association but must be driven by concerned legislators who, in turn, will be driven by a concerned citizenry. We must make every effort to inform citizens of the true cost of non-meritorious litigation and that in the end they are the losers.

R. Bruce Councell, M.D.
Sandridge & Councell Ob-Gyn
Asheville, NC 28801

Ms. Lischer Responds:

Dr. Councell discloses that he has been sued four times in 10 years of practice and is at the deposition stage in these cases. This means that four of his patients have obtained experts, probably at least three in each case, who are Board Certified in his specialty. These 12 physicians will have reviewed the medical records and determined that his care fell below the standard. These physicians are prepared to stake their reputations on their opinions by testifying. They will not do this for money. As my experts tell me, they can earn more and earn it easier seeing patients. Like Dr. Councell, they do not enjoy being deposed. Nor do they testify because they like lawyers. Their allegiance is to good medical care and the patients who seek it.

To be sure, it must be devastating to know that well-qualified experts with training and experience similar to one's own are prepared to tell ordinary people that to a reasonable medical certainty the care you have rendered falls below the standard.

Tracy K. Lischer, J.D., Ph.D.
Pulley, Watson & King
Durham, NC 27702

In Appreciation of Dr. James's Abstracts

To the Editor:

I have been the fortunate recipient of the abstracted journal articles prepared by Richard T. James, Jr., in Charlotte. I was particularly pleased to read the article on page 323 of the July, 1993, issue of the *Journal* in which he explained how he came to do this and how he does it. I was fascinated to see the mechanics of how he carries out this valuable addition to my reading.

Dr. James and I read pretty much the same journals except for those in internal medicine, and I find his abstracts valuable, keeping me alert to what is going on in medicine. For example, his clear analysis of the use of Warfarin as a prophylactic against emboli in people with non-rheumatic atrial fibrillation was a revelation and valuable to me in advising patients.

I am pleased that Sharon Sibert, M.D., of the Division of General Internal Medicine at Duke felt that these reviews were of value for an internist, but I think they are of value to almost anyone who is anxious to keep up with the general field of medicine. Although I can't locate it, I believe the North Carolina Medical Journal had a previous review or commentary about these Dr. James' abstracts, which was less complimentary. I am glad to see a fresh look at what Dr. James has been up to.

Eben Alexander, Jr., M.D.
Department of Neurosurgery
Bowman Gray School of Medicine
Winston-Salem, NC 27157

Editor's note:

Dr. Alexander remembers well! Dr. Gutman's tepid review of *Practical Pointers for the Physician Practicing Primary Care* appeared two years ago (NC Med J 1991;52:626). Not everyone has to like what everyone else does, but the Editor, too, finds Dr. James's abstracts helpful and he is full of admiration for what a doctor with an idea (and a personal computer) can do.

Screening of Asymptomatic Patients To the Editor:

I enjoyed the important article by Wong and Feussner on the screening of asymptomatic patients (NC Med J 1993;54:342-45). As a member of the utilization review committee and chairman of the QA committee for a health maintenance organization, I find this kind of information extremely important.

I write now not only thank them, but to ask a related question regarding the value of preventative care. My calculations suggest that it would be cost beneficial to immunize all working adults against influenza every year. In coming to this conclusion I made the following assumptions:

- 1 The vaccine costs \$10.00 per dose.
- 2 Individuals have a 5% chance of acquiring the disease every year.
- 3 Sick employees will miss five days of work.
- 4 The vaccine is 80% effective.
- 5 It costs employers (sometimes employees) \$75.00 for each day of work lost (this might be much higher).

Based on these assumptions, I calculate that it would cost \$100,000 to vaccinate 10,000 adults. The amount of money to be saved by vaccine-prevented lost work days is \$150,000. When I suggested that this was "the truth" and that my HMO should sponsor such vaccination, the answer was: "There is no publication to that effect." I wonder whether Drs. Wong and Feussner would be interested in pursuing this and related questions about the financial benefit of disease prevention?

Robert A. Gutman, MD
Durham Nephrology Associates, PA
Independence Park
4016 Freedom Lake Drive, Suite 200
Durham, NC 27704

Doctors Wong and Feussner Reply:

We thank Dr. Gutman for his letter regarding our article on health care screening. We are pleased that he found the paper informative and welcome the chance to respond to his further inquiries.

An epidemiological study looking

at a monovalent Influenza A vaccine supports your estimate of efficacy at around 70-80%.¹ Retrospective studies in high risk populations have supported these measures of efficacy^{2,3} although we know of no randomized, controlled trials. The recommendations of the American College of Physicians, the Immunization Practices Advisory Committee and the US Preventive Services Task Force support annual immunization (with tri-valent vaccine) for all persons over 65 years of age, for residents in chronic care facilities, for patients with chronic debilitating illnesses, and for health care workers caring for such patients.^{4,5,6}

The cited studies have looked at reducing death due to influenza; formal cost calculations of lost productivity, time off the job, number of days lost, etc., are not published. Since the assumptions you make are defensible, your point is compelling. However, your analysis is quite sensitive to your initial assumptions and some may find your estimates to be on the high side. For instance, if the vaccine efficacy is 75% (mid-range of those reported); if

only three days, not five, are lost from work; and if the employee has an hourly wage of \$6.25 (\$50.00/day), then you would get less than \$60,000 in benefit for \$100,000 in costs. Pending randomized trials or more firm information about the initial assumptions, policy makers have not recommended vaccination for low risk patients.

References

- 1 Meiklejohn G Effectiveness of monovalent influenza A-prime vaccine during the 1957 influenza A-prime epidemic. *Am J Hyg* 1958;67:237-49.
- 2 Barker WH, Mullooly JP Influenza vaccination of elderly persons: reduction in pneumonia and influenza hospitalizations and deaths. *JAMA* 1980;244:2547-9.
- 3 Rubin FL Prevention of influenza in the elderly. *J Am Geriatr Soc* 1982;30:577-80.
- 4 American College of Physicians. *Guide for Adult Immunization*. 1985, Philadelphia: Williams and Wilkins.
- 5 Immunization Practices Advisory Committee. *Adult Immunizations: recommendations of the Immunization Practices Advisory Committee (ACIP)*. *MMWR* 1984;33:1S-68S.
- 6 US Preventive Services Task Force *Adult Immunizations in Guide to Clinical Preventive Services: An Assessment of the Effectiveness of 169 Interventions*. 1989, Williams and Wilkins, pp 363-368.

Reprint Request

To the Editor:

I am writing to ask permission to reprint two articles that appeared in the North Carolina Medical Journal, dealing with OSHA and the Bloodborne Pathogens Standard:

"What Physicians Need to Know About OSHA", June 1993;

"OSHA's Bloodborne Pathogen Regulations," June 1992.

These reprints will be shared with local school health educators and school system personnel who also have to comply with the Standard. I anticipate making 200 copies of each article (there are 133 local education agencies).

Regina Young Petteway, M.S.P.H.

Comprehensive School Health
Coordinator

North Carolina Department of Public
Instruction
Raleigh, NC 27603-1712

Reply from the Editor:

We are happy to grant permission to reprint these articles, and we are pleased to share their content with school health educators.

The Bioethics Resource Group: A Model for Community Bioethics

George C. Barrett, M.D., and
William G. Porter, M.D.

I know of no safe depository of the ultimate powers of the society but the people themselves; and if we think them not enlightened enough to exercise their control with wholesome discretion, the remedy is not to take it from them, but to inform their discretion.

— Thomas Jefferson

Congratulations to the *Journal* on the excellent series of papers on bioethics in the August issue. These articles confirm that instruction in bioethics is an important part of the curriculum in some of our medical schools, and that the next generation of physicians will enter the profession better prepared than their predecessors to deal with the complex ethical issues raised by modern medical technology. Equally important, such articles are an important resource for the continuing education of physicians in this rapidly evolving field.

But the ethical dilemmas of the modern age are not just

problems for doctors, nurses and hospitals; they must be addressed by society at large. This fundamental belief gave rise in 1985 to the Bioethics Resource Group, Ltd. (BRG). We describe here the success of the BRG and show how it can serve as a model that other communities can use to educate health professionals and the public, involving them in addressing the bioethical dilemmas of the modern age.

History of the Bioethics Resource Group

The BRG grew out of discussions by the Cabinet of the Mecklenburg County Medical Society about the potential impact of Diagnosis Related Groups (DRGs), a concern that implementation of these cost-containment regulations would cause conflict between patients, physicians, and hospitals and would threaten the doctor-patient relationship. Representatives of the Medical Society, of Charlotte's three acute-care hospitals and of the Duke Endowment began discussing the DRG issue. There emerged an awareness of the need to educate both physicians and the community about emerging

bioethical issues. The hospitals and the Medical Society agreed to fund development of a bioethics group comprised of physicians, hospital representatives, nurses, religious professionals, an academic philosopher, and a representative from the Duke Endowment.

The group spent twelve months educating itself and developing a mission statement—a document emphasizing the need to educate both health professionals and the general public:

“Advances in medical technology now allow society to make choices that were unheard of a few years ago. Increasingly, these choices raise ethical issues involving patient privacy, the quality of life, and conflicts between rising health-care costs and the humane, equitable allocation of medical resources. To assist the medical community and the general public in understanding and working through such issues, the Charlotte Area Bioethics Resource Group was organized as a broad-based volunteer council for the purpose of:

Heightening community awareness of bioethical issues by inviting scholars, researchers, and other qualified individuals to present public programs on such issues and by making speakers, reading material and other relevant matter available to the general public.

Assisting people in health-care and allied professions in recognizing bioethical issues and in keeping abreast of developments that relate to bioethical issues.

Encouraging the establishment of ethics committees in hospitals and other health-care institutions and offering them support and guidance on policies and decisions that are bioethical in nature.

Shortly after its incorporation, the BRG sponsored three weekend-long seminars for health-care and social services professionals. Funded by the Duke Endowment, these seminars addressed the overall theme of “Health, Ethics, and Difficult Choices.” Speakers included Dr. Gayle Stephens, Professor of Family Medicine at the University of Alabama School of Medicine; Dr. Raymond Duff, Professor of Pediatrics at Yale University School of Medicine; and Dr. Ronald Cranford, neurologist and bioethicist at Hennepin County Medical Center in Minneapolis. Lectures and small group discussions explored the roots of modern bioethical dilemmas, the changing patient-doctor relationship, and the allocation of limited resources.

In 1986, Dr. Edmund Pellegrino, the noted physician-bioethicist and director of the Institute for Advanced Ethical Studies at Georgetown University, led discussions at each of Charlotte’s three acute-care hospitals. His visit established the BRG’s institutional neutrality and its role as a unifying influence among the community’s hospitals even as they were gearing up to compete with each other in the medical marketplace. Dr. Pellegrino’s educational sessions validated the BRG’s usefulness as an educational resource and

as a facilitator of institutional ethics committee activities in the city’s acute-care hospitals.

The success of these seminars energized the BRG and gave it visibility among physicians and others in the community. The Board of Directors was enlarged to include attorneys, media representatives and other community leaders. The President of the Medical Society was made an *ex officio* member. The Board now meets monthly to conduct business and to discuss the bioethical issues surrounding an illustrative case. Self-education is a high priority, and at meetings of the Board articles of interest are circulated. Several members have attended the week-long course on bioethics at the Kennedy Institute of Ethics in Washington, D.C. and others have had formal training in ethics (the chairs of the Philosophy Department and of the Medical Humanities Department at Davidson College both serve on the Board, as does a physician-attorney). These members are excellent resources for Board education. Funds and space donated by the Medical Society and the hospitals support an executive director who helps plan, publicize and coordinate BRG activities.

Over the years BRG has brought leading bioethicists to Charlotte to speak to community and to medical audiences on end-of-life decisions, health care reform, the function of institutional ethics committees, physician-nurse conflict and other topics. Speakers have included Victor Sidel, MD, Professor of Social Medicine at Montefiore Medical Center; Robert Walker, MD, from the Center for Clinical Medical Ethics at the University of Chicago; Jonathan Moreno, PhD, Director of the Humanities in Medicine program at SUNY, Brooklyn, NY; and Ralph Crawshaw, MD, who heads American Health Decisions and was instrumental in the development of Oregon’s controversial approach to Medicaid reform.

From its inception, the BRG has supported the institutional ethics committees at Carolinas Medical Center, Presbyterian Hospital and Mercy Hospital. We have sponsored annual joint meetings of these committees with a guest lecturer leading a discussion on a topic of common concern. To assure ongoing communication between these ethics committees, institutional committee members serve on the BRG Board.

Current Programs

Institutional Consultation: Through its institutional consultation committee, BRG brings together representatives of the acute-care hospitals to discuss and develop unified policies. In the past these issues have included implementation of the Patient Self-Determination Act, Do-Not-Resuscitate forms and policies, and other areas of mutual interest. Uniform policies have not always been the result, but similarities exist that help avoid community and staff confusion.

Community Education: After having established its credibility and assured the support of the medical community for its programs, the BRG has since devoted a considerable

portion of its energy to community education. In addition to arranging for visiting lecturers to address community audiences, BRG Board members have given hundreds of talks to Sunday Schools, civic groups, and public forums. Initially, these talks focused on the right-to-die issue, since it is a topic germane to almost everyone's personal experience. More recently we have been discussing health care financing, changes in health care law, and resource allocation issues.

A resource library lends books, articles, and video tapes. Thousands of brochures on Living Wills and Health Care Powers of Attorney have been distributed.

With funding and support from the Medical Society and its Auxiliary, BRG is developing a program on access to healthcare. Under BRG leadership, health and religious professionals in local congregations are planning educational sessions that will heighten awareness and stimulate congregational action to improve access to care for the community's infants and children.

Regional Network: In 1992 BRG received a grant from the Knight Foundation to establish and develop community-oriented bioethics committees at hospitals in the Charlotte region. A part-time Regional Coordinator directs this project which to date has established committees at a hospital in South Carolina and a nursing home in North Carolina, and is working with several other committees-in-formation. The regional program provides educational resources and coordinates contacts among established institutional ethics committees in the region. It produces and distributes *Regional Review*, a quarterly newsletter containing news from ethics committees and articles on bioethical issues.

Advisory Board: An Advisory Board of prominent citizens, appointed by the BRG president, meets twice a year to help the board identify issues of interest to the community and to help with fund-raising and public recognition of the BRG's activities.

The Future

Education remains the BRG's *raison d'être*. Community bioethics has made great strides in its brief history. After a decade of informed public debate, society is beginning to reckon with the limits of technology and what these limits imply; many states have passed Natural Death Acts, patients discuss Living Wills and other advance directives with their physicians, and the Patient Self-Determination Act has become law.

On the horizon loom even more complex issues. The human genome project will provide information about risk

of disease that many people will not want themselves or anyone else to know. Gene therapy and other nascent technologies will compete for scarce resources and raise new questions about who gets what—and who decides. And what fresh Hell will surprise us in the next century, adding to the burdens of suffering and moral and economic conflict?

BRG's has succeeded in bringing ethical issues before the medical profession and the public. It provides a model and a resource for communities and institutions as they confront the ethical complexities of the present and plan for the future.

Conclusion

We began with our considerable concern for a single issue (DRG's), with little or no knowledge and one teacher, Dr. John Lincourt, professor of Philosophy at the University of North Carolina, Charlotte. As our knowledge grew, we gained the confidence to educate health care givers and finally the general public. Now physicians in general may be willing to educate the public about its rightful role in the arenas of health care including technology utilization, right to die, and access to care. These educational efforts have certainly paid dividends for our region. Ultimately they may pay dividends with issues such as the demand for futile treatment. They help assure that physicians in our region are not deflected from their roles as patient advocate at the bedside, while assuring that physicians are involved in educating society about its responsibilities in health care decisions.

Any community can form a BRG-type organization as long as health care providers will assume a leadership role. When the genesis is from the lay community, the medical community suspects that their "turf" is being invaded (and

Pearl of the Month

"To examine a baby's ear:

1. Show him the light (the otoscope).
2. Hold the otoscope high enough for the light to shine over his head and against the wall where the child can see the light on the wall out of the corner of his eye. All this time you have the tip of your little finger stuck in his ear so that when you wiggle your hand in a circular motion, your fingers and the light on the wall are moving together in harmony.
3. On the third try, you can put the otoscope in the ear and wonder where the light went."

—submitted by

Bruce B. Blackmon, M.D.
Buis Creek, NC 27506

Guidelines for Letters:

All letters are subject to editing and abridgment. Letters should not exceed 500 words; longer letters are welcome, however, and we will consider them for publication elsewhere in the *Journal*. Letters must be typed, double-spaced, signed, dated, and include the author's phone number and address. Send letters to: NCMJ, Box 3910, DUMC, Durham, NC 27710; or fax them to: 919-286-9219.

Discover The Elegance Of A Hybrid



At first glance, it's the *beauty* of a rose that catches the eye. The vibrant color. The delicately shaped petals. But study it more closely, and its *elegance* becomes apparent—a gentle blend of softness and strength.

At first glance, it's the *enhanced performance* of Vaseretic that catches the eye. But study Vaseretic more closely, and its *elegance* becomes apparent. The way its one-tablet, once-a-day dosage minimizes multiple

medications. Minimizes insurance copayments. And minimizes potassium supplementation.

A hybrid *blending of tolerability and power* that's available for the right patient. Vaseretic is indicated for the treatment of hypertension in patients for whom combination therapy is appropriate.

And an elegant discovery for your practice.

USE IN PREGNANCY: When used in pregnancy during the second and third trimesters, ACE inhibitors can cause injury and even death to the developing fetus. When pregnancy is detected, Vaseretic® (Enalapril Maleate-Hydrochlorothiazide) should be discontinued as soon as possible. See WARNINGS, Fetal/Neonatal Morbidity and Mortality.

VASERETIC® 10-25 *Next*
Enalapril Maleate-Hydrochlorothiazide

Dosage must be individualized; the fixed combination is not for initial therapy.

Evaluation of the hypertensive patient should always include assessment of renal function.

For a Brief Summary of Prescribing Information, see adjacent pages.

**TABLETS
VASERETIC®
ENALAPRIL MALEATE-HYDROCHLOROTHIAZIDE**

USE IN PREGNANCY: When used in pregnancy during the second and third trimesters, ACE inhibitors can cause injury and even death to the developing fetus. When pregnancy is detected, VASERETIC® (Enalapril Maleate-Hydrochlorothiazide) should be discontinued as soon as possible. See WARNINGS, Fetal/Neonatal Morbidity and Mortality.

CONTRAINDICATIONS: VASERETIC is contraindicated in patients who are hypersensitive to any component of this product and in patients with a history of angioedema related to previous treatment with an angiotensin converting enzyme inhibitor. Because of the hydrochlorothiazide component, this product is contraindicated in patients with anuria or hypersensitivity to other sulfonamide-derived drugs.

WARNINGS: General, Enalapril Maleate; Hypotension: Excessive hypotension was rarely seen in uncomplicated hypertensive patients but is a possible consequence of enalapril use in severely salt/volume depleted persons such as those treated vigorously with diuretics or patients on dialysis.

Syncope has been reported in 1.3 percent of patients receiving VASERETIC. In patients receiving enalapril alone, the incidence of syncope is 0.5 percent. The overall incidence of syncope may be reduced by proper titration of the individual components. (See PRECAUTIONS, Drug Interactions, and ADVERSE REACTIONS.)

In patients with severe congestive heart failure, with or without associated renal insufficiency, excessive hypotension has been observed and may be associated with oliguria and/or progressive azotemia, and rarely with acute renal failure and/or death. Because of the potential fall in blood pressure in these patients, therapy should be started under very close medical supervision. Such patients should be followed closely for the first two weeks of treatment and whenever the dose of enalapril and/or diuretic is increased. Similar considerations may apply to patients with ischemic heart or cerebrovascular disease, in whom an excessive fall in blood pressure could result in a myocardial infarction or cerebrovascular accident.

If hypotension occurs, the patient should be placed in the supine position and, if necessary, receive an intravenous infusion of normal saline. A transient hypotensive response is not a contraindication to further doses, which usually can be given without difficulty once the blood pressure has increased after volume expansion.

Angioedema: Angioedema of the face, extremities, lips, tongue, glottis and/or larynx has been reported in patients treated with angiotensin converting enzyme inhibitors, including enalapril. In such cases VASERETIC should be promptly discontinued and appropriate therapy and monitoring should be provided until complete and sustained resolution of signs and symptoms has occurred. In instances where swelling has been confined to the face and lips the condition has generally resolved without treatment, although antihistamines have been useful in relieving symptoms. Angioedema associated with laryngeal edema may be fatal. Where there is involvement of the tongue, glottis or larynx, likely to cause airway obstruction, appropriate therapy, e.g., subcutaneous epinephrine solution 1:1000 (0.3 mL to 0.5 mL) and/or measures necessary to ensure a patent airway, should be promptly provided. (See ADVERSE REACTIONS.)

Patients with a history of angioedema unrelated to ACE inhibitor therapy may be at increased risk of angioedema while receiving an ACE inhibitor (see also CONTRAINDICATIONS).

Neutropenia/Agranulocytosis: Another angiotensin converting enzyme inhibitor, captopril, has been shown to cause agranulocytosis and bone marrow depression, rarely in uncomplicated patients but more frequently in patients with renal impairment especially if they also have a collagen vascular disease. Available data from clinical trials of enalapril are insufficient to show that enalapril does not cause agranulocytosis at similar rates. Marketing experience has revealed several cases of neutropenia or agranulocytosis in which a causal relationship to enalapril cannot be excluded. Periodic monitoring of white blood cell counts in patients with collagen vascular disease and renal disease should be considered.

Hydrochlorothiazide: Thiazides should be used with caution in severe renal disease. In patients with renal disease, thiazides may precipitate azotemia. Cumulative effects of the drug may develop in patients with impaired renal function.

Thiazides should be used with caution in patients with impaired hepatic function or progressive liver disease, since minor alterations of fluid and electrolyte balance may precipitate hepatic coma.

Sensitivity reactions may occur in patients with or without a history of allergy or bronchial asthma.

The possibility of exacerbation or activation of systemic lupus erythematosus has been reported.

Lithium generally should not be given with thiazides (see PRECAUTIONS, Drug Interactions, Enalapril Maleate and Hydrochlorothiazide).

Pregnancy, Enalapril-Hydrochlorothiazide: There was no teratogenicity in rats given up to 90 mg/kg/day of enalapril (50 times the maximum human dose) in combination with 10 mg/kg/day of hydrochlorothiazide (2 1/2 times the maximum human dose) or in mice given up to 30 mg/kg/day of enalapril (50 times the maximum human dose) in combination with 10 mg/kg/day of hydrochlorothiazide (2 1/2 times the maximum human dose). At these doses, fetotoxicity expressed as a decrease in average fetal weight occurred in both species. No fetotoxicity occurred at lower doses; 30/70 mg/kg/day of enalapril-hydrochlorothiazide in rats and 10/10 mg/kg/day of enalapril-hydrochlorothiazide in mice.

When used in pregnancy during the second and third trimesters, ACE inhibitors can cause injury and even death to the developing fetus. When pregnancy is detected, VASERETIC should be discontinued as soon as possible. (See Enalapril Maleate, Fetal/Neonatal Morbidity and Mortality, below.)

Enalapril Maleate, Fetal/Neonatal Morbidity and Mortality: ACE inhibitors can cause fetal and neonatal morbidity and death when administered to pregnant women. Several dozen cases have been reported in the world literature. When pregnancy is detected, ACE inhibitors should be discontinued as soon as possible.

The use of ACE inhibitors during the second and third trimesters of pregnancy has been associated with fetal and neonatal injury, including hypotension, neonatal skull hypoplasia, anuria, reversible or irreversible renal failure, and death. Oligohydramnios has also been reported, presumably resulting from decreased fetal renal function; oligohydramnios in this setting has been associated with fetal limb contractures, craniofacial deformation, and hypoplastic lung development. Prematurity, intrauterine growth retardation, and patent ductus arteriosus have also been reported, although it is not clear whether these occurrences were due to the ACE-inhibitor exposure.

These adverse effects do not appear to have resulted from intrauterine ACE-inhibitor exposure that has been limited to the first trimester. Mothers whose embryos and fetuses are exposed to ACE inhibitors only during the first trimester should be so informed. Nonetheless, when patients become pregnant, physicians should make every effort to discontinue the use of VASERETIC as soon as possible.

Rarely (probably less often than once in every thousand pregnancies), no

10
mg

25
mg

alternative to ACE inhibitors will be found. In these rare cases, the mothers should be apprised of the potential hazards to their fetuses, and serial ultrasound examinations should be performed to assess the intrauterine environment.

If oligohydramnios is observed, VASERETIC should be discontinued unless it is considered lifesaving for the mother. Contraction stress testing (CST), a non-stress test (NST), or biophysical profiling (BPP) may be appropriate, depending upon the week of pregnancy. Patients and physicians should be aware, however, that oligohydramnios may not appear until after the fetus has sustained an irreversible injury.

Infants with histories of *in utero* exposure to ACE inhibitors should be closely observed for hypotension, oliguria, and hyperkalemia. If oliguria occurs, attention should be directed toward support of blood pressure and renal perfusion. Exchange transfusion or dialysis may be required as means of reversing hypotension and/or substituting for disordered renal function. Enalapril, which crosses the placenta, has been removed from neonatal circulation by peritoneal dialysis with some clinical benefit, and theoretically may be removed by exchange transfusion, although there is no experience with the latter procedure.

No teratogenic effects of enalapril were seen in studies of pregnant rats, and rabbits. On a mg/kg basis, the doses used were up to 333 times (in rats), and 50 times (in rabbits) the maximum recommended human dose.

Hydrochlorothiazide; Teratogenic Effects: Reproduction studies in the rabbit, the mouse and the rat at doses up to 100 mg/kg/day (50 times the human dose) showed no evidence of external abnormalities of the fetus due to hydrochlorothiazide. Hydrochlorothiazide given in a two-litter study in rats at doses of 4 + 5 mg/kg/day (approximately 1-2 times the usual daily human dose) did not impair fertility or produce birth abnormalities in the offspring. Thiazides cross the placental barrier and appear in cord blood.

Nonteratogenic Effects: These may include fetal or neonatal jaundice, thrombocytopenia, and possibly other adverse reactions which have occurred in the adult.

PRECAUTIONS: General; Enalapril Maleate; Impaired Renal Function: As a consequence of inhibiting the renin-angiotensin-aldosterone system, changes in renal function may be anticipated in susceptible individuals. In patients with severe congestive heart failure whose renal function may depend on the activity of the renin-angiotensin-aldosterone system, treatment with angiotensin converting enzyme inhibitors, including enalapril, may be associated with oliguria and/or progressive azotemia and rarely with acute renal failure and/or death.

In clinical studies in hypertensive patients with unilateral or bilateral renal artery stenosis, increases in blood urea nitrogen and serum creatinine were observed in 20 percent of patients. These increases were almost always reversible upon discontinuation of enalapril and/or diuretic therapy. In such patients renal function should be monitored during the first few weeks of therapy.

Some patients with hypertension or heart failure with no apparent pre-existing renal vascular disease have developed increases in blood urea and serum creatinine, usually minor and transient, especially when enalapril has been given concomitantly with a diuretic. This is more likely to occur in patients with pre-existing renal impairment. Dosage reduction of enalapril and/or discontinuation of the diuretic may be required.

Evaluation of the hypertensive patient should always include assessment of renal function.

Hemodialysis Patients: Anaphylactoid reactions have been reported in patients dialyzed with high-flux membranes (e.g., AN 69) and treated concomitantly with an ACE inhibitor. In these patients consideration should be given to using a different type of dialysis membrane or a different class of antihypertensive agent.

Hyperkalemia: Elevated serum potassium (greater than 5.7 mEq/L) was observed in approximately one percent of hypertensive patients in clinical trials treated with enalapril alone. In most cases these were isolated values which resolved despite continued therapy, although hyperkalemia was a cause of discontinuation of therapy in 0.28 percent of hypertensive patients. Hyperkalemia was less frequent (approximately 0.1 percent) in patients treated with enalapril plus hydrochlorothiazide. Risk factors for the development of hyperkalemia include renal insufficiency, diabetes mellitus, and the concomitant use of potassium-sparing diuretics, potassium supplements and/or potassium-containing salt substitutes, which should be used cautiously, if at all, with enalapril. (See Drug Interactions.)

Cough: Cough has been reported with the use of ACE inhibitors. Characteristically, the cough is nonproductive, persistent and resolves after discontinuation of therapy. ACE inhibitor-induced cough should be considered as part of the differential diagnosis of cough.

Surgery/Anesthesia: In patients undergoing major surgery or during anesthesia with agents that produce hypotension, enalapril may block angiotensin II formation secondary to compensatory renin release. If hypotension occurs and is considered to be due to this mechanism, it can be corrected by volume expansion.

Hydrochlorothiazide: Periodic determination of serum electrolytes to detect possible electrolyte imbalance should be performed at appropriate intervals. All patients receiving thiazide therapy should be observed for clinical signs of fluid or electrolyte imbalance: hyponatremia, hypochloremic alkalosis, and hypokalemia. Serum and urine electrolyte determinations are particularly important when the patient is vomiting excessively or receiving parenteral fluids. Warning signs or symptoms of fluid and electrolyte imbalance, irrespective of cause, include dryness of mouth, thirst, weakness, lethargy, drowsiness, restlessness, confusion, seizures, muscle pains or cramps, muscular fatigue, hypotension, oliguria, tachycardia, and gastrointestinal disturbances such as nausea and vomiting.

Hypokalemia may develop, especially with brisk diuresis, when severe or chronic is present, or after prolonged therapy. Interference with adequate oral electrolyte intake will also contribute to hypokalemia. Hypokalemia may cause cardiac arrhythmia and may also sensitize or exaggerate the response of the heart to the toxic effects of digitalis (e.g., increased ventricular irritability). Because enalapril reduces the production of aldosterone, concomitant therapy with enalapril attenuates the diuretic-induced potassium loss (see Drug Interactions, Agents Increasing Serum Potassium).

Although any chloride deficit is generally mild and usually does not require specific treatment except under extraordinary circumstances (as in liver disease or renal disease), chloride replacement may be required in the

treatment of metabolic alkalosis.

Dilutional hyponatremia may occur in edematous patients in hot weather; appropriate therapy is water restriction, rather than administration of salt except in rare instances when the hyponatremia is life-threatening. In all salt depletion, appropriate replacement is the therapy of choice.

Hypernatremia may occur or frank gout may be precipitated in certain patients receiving thiazide therapy.

In diabetic patients dosage adjustments of insulin or oral hypoglycemic agents may be required. Hyperglycemia may occur with thiazide diuretics. Thus latent diabetes mellitus may become manifest during thiazide therapy. The antihypertensive effects of the drug may be enhanced in the post-pathectomy patient.

If progressive renal impairment becomes evident consider withholding or discontinuing diuretic therapy.

Thiazides have been shown to increase the urinary excretion of magnesium; this may result in hypomagnesemia.

Thiazides may decrease urinary calcium excretion. Thiazides may cause intermittent and slight elevation of serum calcium in the absence of known disorders of calcium metabolism. Marked hypercalcemia may be evident in hidden hyperparathyroidism. Thiazides should be discontinued before starting out tests for parathyroid function.

Increases in cholesterol and triglyceride levels may be associated with azide diuretic therapy.

Information for Patients; Angioedema: Angioedema, including laryngeal edema may occur especially following the first dose of enalapril. Patients should be so advised and told to report immediately any signs or symptoms suggestive of angioedema (swelling of face, extremities, eyes, lips, tongue, difficulty swallowing or breathing) and to take no more drug until they have consulted with the prescribing physician.

Hypotension: Patients should be cautioned to report lightheadedness especially during the first few days of therapy. If actual syncope occurs, patients should be told to discontinue the drug until they have consulted with the prescribing physician.

All patients should be cautioned that excessive perspiration and dehydration may lead to an excessive fall in blood pressure because of reduction in fluid volume. Other causes of volume depletion such as vomiting or diarrhea may also lead to a fall in blood pressure; patients should be advised to consult with the physician.

Hyperkalemia: Patients should be told not to use salt substitutes containing potassium without consulting their physician.

Neutropenia: Patients should be told to report promptly any indication of infection (e.g., sore throat, fever) which may be a sign of neutropenia.

Pregnancy: Female patients of childbearing age should be told about the consequences of second- and third-trimester exposure to ACE inhibitors, and they should also be told that these consequences do not appear to have resulted from intrauterine ACE-inhibitor exposure that has been limited to the first trimester. These patients should be asked to report pregnancies to their physicians as soon as possible.

NOTE: As with many other drugs, certain advice to patients being treated with VASERETIC is warranted. This information is intended to aid in the safe and effective use of this medication. It is not a disclosure of all possible adverse or intended effects.

Drug Interactions; Enalapril Maleate; Hypotension—Patients on Diuretic Therapy: Patients on diuretics and especially those in whom diuretic therapy was recently instituted, may occasionally experience an excessive reduction of blood pressure after initiation of therapy with enalapril. The possibility of hypotensive effects with enalapril can be minimized by either discontinuing the diuretic or increasing the salt intake prior to initiation of treatment with enalapril. If it is necessary to continue the diuretic, provide medical supervision for at least two hours and until blood pressure has stabilized for at least an additional hour. (See WARNINGS.)

Agents Causing Renin Release: The antihypertensive effect of enalapril is augmented by antihypertensive agents that cause renin release (e.g., diuretics).

Other Cardiovascular Agents: Enalapril has been used concomitantly with beta adrenergic-blocking agents, methyldopa, nitrates, calcium-blocking agents, hydralazine and prazosin without evidence of clinically significant adverse interactions.

Agents Increasing Serum Potassium: Enalapril attenuates diuretic-induced potassium loss. Potassium-sparing diuretics (e.g., spironolactone, triamterene, or amiloride), potassium supplements, or potassium-containing salt substitutes may lead to significant increases in serum potassium. Therefore, if concomitant use of these agents is indicated because of demonstrated hypokalemia they should be used with caution and with frequent monitoring of serum potassium.

Lithium: Lithium toxicity has been reported in patients receiving lithium concomitantly with drugs which cause elimination of sodium, including ACE inhibitors. A few cases of lithium toxicity have been reported in patients receiving concomitant enalapril and lithium and were reversible upon discontinuation of both drugs. It is recommended that serum lithium levels be monitored frequently if enalapril is administered concomitantly with lithium. Hydrochlorothiazide: When administered concurrently the following drugs may interact with thiazide diuretics:

Alcohol, barbiturates, or narcotics: potentiation of orthostatic hypotension may occur.

Antidiabetic drugs (oral agents and insulin):—dosage adjustment of the antidiabetic drug may be required.

Other antihypertensive drugs:—additive effect or potentiation.

Cholestyramine and colestipol resins:—Cholestyramine and colestipol resins bind the hydrochlorothiazide and reduce its absorption from the gastrointestinal tract by up to 85 and 43 percent, respectively. Thiazides may be administered two to four hours before the resin when the two drugs are used concomitantly.

Corticosteroids, ACTH:—intensified electrolyte depletion, particularly hypokalemia.

Pressor amines (e.g., norepinephrine):—possible decreased response to pressor amines but not sufficient to preclude their use.

Skeletal muscle relaxants, nondepolarizing (e.g., tubocurarine):—possible increased responsiveness to the muscle relaxant.

Lithium:—should not generally be given with diuretics. Diuretic agents reduce the renal clearance of lithium and add a high risk of lithium toxicity. Refer to the package insert for lithium preparations before use of such preparations with VASERETIC.

Non-steroidal Anti-inflammatory Drugs:—In some patients, the administration of a non-steroidal anti-inflammatory agent can reduce the diuretic, natriuretic, and antihypertensive effects of loop, potassium-sparing and thiazide diuretics. Therefore, when VASERETIC and non-steroidal anti-inflammatory agents are used concomitantly, the patient should be observed closely to determine if the desired effect of the diuretic is obtained.

Carcinogenesis, Mutagenesis, Impairment of Fertility: Enalapril in combination with hydrochlorothiazide was not mutagenic in the Ames microbial mutagen test with or without metabolic activation. Enalapril-hydrochlorothiazide did not produce DNA single strand breaks in an *in vitro* alkaline elution assay in rat hepatocytes or chromosomal aberrations in an *in vitro* mouse

bone marrow assay

Enalapril Maleate: There was no evidence of a tumorigenic effect when enalapril was administered for 106 weeks to rats at doses up to 90 mg/kg/day (150 times the maximum daily human dose). Enalapril has also been administered for 94 weeks to male and female mice at doses up to 90 and 180 mg/kg/day, respectively, (150 and 300 times the maximum daily dose for humans) and showed no evidence of carcinogenicity.

Neither enalapril maleate nor the active diacid was mutagenic in the Ames microbial mutagen test with or without metabolic activation. Enalapril was also negative in the following genotoxicity studies: reverse mutation assay with *E. coli*, sister chromatid exchange with cultured mammalian cells, and the micronucleus test with mice, as well as in an *in vitro* cytogenetic study using mouse bone marrow.

There were no adverse effects on reproductive performance in male and female rats treated with 10 to 90 mg/kg/day of enalapril.

Hydrochlorothiazide: Two-year feeding studies in mice and rats conducted under the auspices of the National Toxicology Program (NTP) uncovered no evidence of a carcinogenic potential of hydrochlorothiazide in female mice (at doses of up to approximately 600 mg/kg/day) or in male and female rats (at doses of up to approximately 100 mg/kg/day). The NTP, however, found equivocal evidence for hepatocarcinogenicity in male mice.

Hydrochlorothiazide was not genotoxic *in vitro* in the Ames mutagenicity assay of *Salmonella typhimurium* strains TA 98, TA 100, TA 1535, TA 1537, and TA 1538 and in the Chinese Hamster Ovary (CHO) test for chromosomal aberrations, or *in vivo* in assays using mouse germinal cell chromosomes. Chinese hamster bone marrow chromosomes, and the *Drosophila* sex-linked recessive lethal trait gene. Positive test results were obtained only in the *in vitro* CHO Sister Chromatid Exchange (clastogenicity) and in the Mouse Lymphoma Cell (mutagenicity) assays, using concentrations of hydrochlorothiazide from 43 to 1300 µg/mL, and in the *Aspergillus nidulans* non-disjunction assay at an unspecified concentration.

Hydrochlorothiazide had no adverse effects on the fertility of mice and rats of either sex in studies wherein these species were exposed, by their diet, to doses of up to 100 and 4 mg/kg, respectively, prior to conception and throughout gestation.

Pregnancy: Pregnancy Categories C (first trimester) and D (second and third trimesters). See WARNINGS, Pregnancy, Enalapril Maleate, Fetal/Neonatal Morbidity and Mortality.

Nursing Mothers: Enalapril and enalapril are detected in human milk in trace amounts. Thiazides do appear in human milk. Because of the potential for serious reactions in nursing infants from either drug, a decision should be made whether to discontinue nursing or to discontinue VASERETIC, taking into account the importance of the drug to the mother.

Pediatric Use: Safety and effectiveness in children have not been established.

ADVERSE REACTIONS: VASERETIC has been evaluated for safety in more than 1500 patients, including over 300 patients treated for one year or more. In clinical trials with VASERETIC no adverse experiences peculiar to this combination drug have been observed. Adverse experiences that have occurred, have been limited to those that have been previously reported with enalapril or hydrochlorothiazide.

The most frequent clinical adverse experiences in controlled trials were: dizziness (8.6 percent), headache (5.5 percent), fatigue (3.9 percent) and cough (3.5 percent). Adverse experiences occurring in greater than two percent of patients treated with VASERETIC in controlled clinical trials were: muscle cramps (2.7 percent), nausea (2.5 percent), asthenia (2.4 percent), orthostatic effects (2.3 percent), impotence (2.2 percent), and diarrhea (2.1 percent).

Clinical adverse experiences occurring in 0.5 to 20 percent of patients in controlled trials included: **Body As A Whole:** Syncope, chest pain, abdominal pain; **Cardiovascular:** Orthostatic hypotension, palpitation, tachycardia; **Digestive:** Vomiting, dyspepsia, constipation, flatulence, dry mouth; **Nervous System/Psychiatric:** Insomnia, nervousness, paresthesia, somnolence, vertigo; **Skin:** Pruritus, rash; **Other:** Dyspnea, cough, back pain, arthralgia, diphtheria, decreased libido, tinnitus, urinary tract infection.

Angioedema: Angioedema has been reported in patients receiving VASERETIC (0.6 percent). Angioedema associated with laryngeal edema may be fatal. If angioedema of the face, extremities, lips, tongue, glottis and/or larynx occurs, treatment with VASERETIC should be discontinued and appropriate therapy instituted immediately. (See WARNINGS.)

Hypotension: In clinical trials, adverse effects relating to hypotension occurred as follows: hypotension (0.9 percent), orthostatic hypotension (1.5 percent), other orthostatic effects (2.3 percent). In addition syncope occurred in 1.3 percent of patients. (See WARNINGS.)

Cough: See PRECAUTIONS, Cough.

Clinical Laboratory Test Findings; Serum Electrolytes: See PRECAUTIONS.

Creatinine, Blood Urea Nitrogen: In controlled clinical trials minor increases in blood urea nitrogen and serum creatinine, reversible upon discontinuation of therapy, were observed in about 0.6 percent of patients with essential hypertension treated with VASERETIC. More marked increases have been reported in other enalapril experience. Increases are more likely to occur in patients with renal artery stenosis. (See PRECAUTIONS.)

Serum Uric Acid, Glucose, Magnesium, and Calcium: See PRECAUTIONS.

Hemoglobin and Hematocrit: Small decreases in hemoglobin and hematocrit (mean decreases of approximately 0.3 g percent and 1.0 vol percent, respectively) occur frequently in hypertensive patients treated with VASERETIC but are rarely of clinical importance unless another cause of anemia coexists. In clinical trials, less than 0.1 percent of patients discontinued therapy due to anemia.

Liver Function Tests: Rarely, elevations of liver enzymes and/or serum bilirubin have occurred.

Other adverse reactions that have been reported with the individual components are listed below and, within each category, are in order of decreasing severity.

Enalapril Maleate: Enalapril has been evaluated for safety in more than 10,000 patients. In clinical trials adverse reactions which occurred with enalapril were also seen with VASERETIC. However, since enalapril has been marketed, the following adverse reactions have been reported: **Body As A Whole:** Anaphylactoid reactions (see PRECAUTIONS, Hemodialysis Patients); **Cardiovascular:** Cardiac arrest, myocardial infarction or cerebrovascular accident, possibly secondary to excessive hypotension in high risk patients (see WARNINGS, Hypotension); pulmonary embolism and infarction; pulmonary edema; rhythm disturbances including atrial tachycardia and bradycardia; atrial fibrillation; hypotension; angina pectoris; **Digestive:** Ileus, pancreatitis, hepatic failure, hepatitis (hepatocellular [proven on rechallenge] or cholestatic jaundice), melena, anorexia, glossitis, stomatitis, dry mouth; **Hematologic:** Rare cases of neutropenia, thrombocytopenia and bone marrow depression, a few cases of hemolysis in patients with G-6-PD deficiency have been reported in which a causal relationship to enalapril cannot be excluded; **Nervous System/Psychiatric:** Depression, confusion, ataxia, peripheral neuropathy (e.g., paresthesia, dysesthesia); **Urogenital:** Renal failure, oliguria, renal dysfunction (see PRECAUTIONS), flank pain, gynecostasia; **Respiratory:** Pulmonary infiltrates, bronchospasm, pneumonia, bronchitis, rhinorrhea, sore throat and hoarseness, asthma, upper respiratory infection; **Skin:** Exfoliative dermatitis, toxic epidermal necrolysis, Stevens-Johnson syndrome, herpes zoster, erythema multiforme, urticaria, alopecia, flushing, photosensitivity; **Special Senses:** Blurred vision, taste alteration, anosmia, conjunctivitis, dry eyes, tearing.

Miscellaneous: A symptom complex has been reported which may include a positive ANA, an elevated erythrocyte sedimentation rate, arthralgia/arthritis, myalgia, fever, serositis, vasculitis, leukocytosis, eosinophilia, photosensitivity, rash and other dermatologic manifestations.

Fetal/Neonatal Morbidity and Mortality: See WARNINGS, Pregnancy, Enalapril Maleate, Fetal/Neonatal Morbidity and Mortality.

Hydrochlorothiazide—Body as a Whole: Weakness; **Digestive:** Pancreatitis, jaundice (intrahepatic cholestatic jaundice), sialadenitis, cramping, gastric irritation, anorexia; **Hematologic:** Aplastic anemia, agranulocytosis, leukopenia, hemolytic anemia, thrombocytopenia; **Sensitization:** Purpura, photosensitivity, urticaria, necrotizing angitis (vasculitis and cutaneous vasculitis), fever, respiratory distress including pneumonitis and pulmonary edema, anaphylactic reactions; **Musculoskeletal:** Muscle spasm; **Nervous System/Psychiatric:** Restlessness; **Renal:** Renal failure, renal dysfunction, interstitial nephritis (see WARNINGS); **Skin:** Erythema multiforme including Stevens-Johnson syndrome, exfoliative dermatitis including toxic epidermal necrolysis, alopecia; **Special Senses:** Transient blurred vision, xanthopsia.

* Based on patient weight of 50 kg.

For more detailed information, consult your DuPont Pharma Representative or see Prescribing Information.

Dist. by



MERCK & CO., INC.

West Point, PA 19486, USA

Printed in USA

issued October 1992
432317

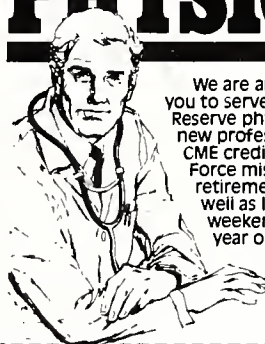
they may be right, for the lay community often recognizes what the medical community is too narrowly focused to acknowledge).

If our medical schools, universities, and colleges meet their responsibility to educate health care givers about bioethical issues, the coming generation will understand its responsibility for and be well-positioned to provide ongoing community education. Our medical schools will well serve themselves and their graduates if they jointly discuss how they can provide course in basic bioethics and related issues. Clearly there is a broad spectrum of what is "correct and incorrect" in this arena. However, just as all physicians learn anatomy, physiology, biochemistry, and pharmacology, they also need a basic fund of knowledge in bioethics. The diversity of approaches to problems can be demonstrated in the clinical years and be more meaningful then if the student has a moral basis for approaching clinical dilemmas. There is room for both moral philosopher and clinical ethicist at the bedside — perhaps in the person of one doctor.

An educated populace, as Jefferson stressed, is medicine's surest defense against benighted interference with the relationship of doctor and patient. The quality of medicine's future, for health professionals and patients alike, hinges on the quality of response and attitude that the graduates of our medical schools bring to the patients and communities they serve. And that attitude will be determined in large part by the educational efforts of our medical schools. They have the people and the resources to train their students. We hope they have the will to use these resources and to involve their community in the educational process.



PHYSICIANS



We are announcing opportunities for you to serve your country as an Air Force Reserve physician/officer. You can make new professional associations, obtain CME credit and help support the Air Force mission. For those who qualify, retirement credit can be obtained as well as low cost life insurance. One weekend a month plus two weeks a year or less can bring you pride and satisfaction in serving your country.

CALL:

Or Fill Out Coupon and Mail Today!
To: MGST Unda Landrum
2400 RRMS/RS-1
Bldg 1000, Room 112
Charleston AFB, SC 29404-6004

Name _____

Address _____

City _____

State _____

Zip _____

Phone _____

Prior Service? Yes _____ No _____

Medical Specialty _____

Date of Birth _____

AIR FORCE RESERVE

25-301-0009

A GREAT WAY TO SERVE

Screening for Ovarian Cancer: Not Worthwhile for Most Patients

Jeffrey G. Wong, M.D. and John R. Feussner, M.D.

"The mother of one of Susan's friends, Mary Jones, is being treated for cancer of the ovary. By the time Ms. Jones' physician discovered her cancer it was widely spread and she is not expected to recover from her disease. Having discussed the role of the Pap smear in cervical cancer screening, Susan asks about the need to screen for ovarian cancer. None of her relatives has ever had ovarian cancer, but she is nonetheless concerned about getting it herself, having watched how Ms. Jones has suffered."

In the first article in this series (NC Med J 1993;54:218-21) we addressed general considerations for deciding whether and how to screen asymptomatic patients for disease. In this and subsequent articles, we address specific questions about specific conditions.

What should we recommend to Susan regarding screening for ovarian cancer? Using our six guidelines, we will formulate a recommendation for Susan, reviewing each guideline individually in order to arrive at a reasonable therapeutic plan.

Target Disease Considerations

1. Is the disease common or serious enough to warrant screening?

Serious, yes; common, no! The death rate from ovarian cancer is the highest among gynecological cancers and ranks fifth overall as a cause of cancer deaths in women. There are approximately

20,000 new cases of ovarian cancer and over 12,000 deaths each year,¹ and it is estimated that one woman in 70 will develop ovarian cancer and subsequently die from it.² Though significant, the rates are considerably lower than those for breast cancer, for instance (one woman in nine will develop breast cancer during her lifetime and over 44,500 lives are lost each year to this disease³). Ovarian cancer is an important cause of morbidity and mortality in women, but its relatively low incidence and prevalence have important implications in screening.

2. Is there a pre-symptomatic phase in the natural history of the disease during which time a test can detect it?

Probably not. Ovarian cancer is a heterogeneous disease and its natural history is not well understood. Tumors of epithelial cell origin comprise the vast majority of cases, but cancers originate from the multiple other types of ovarian cells. Each cell type, or sub-type, has its own potential for metastatic spread and this makes prognosis difficult.⁴ In addition, epidemiological studies have not conclusively described how ovarian cancer disseminates. And

finally, "ovarian tumors" have occasionally developed from extra-ovarian Muellerian duct cells even after bilateral oophorectomy, further complicating the picture.⁵

Because of these and other factors, in over 75% of cases ovarian cancer has already spread beyond the ovary at the time of detection. The patient is usually asymptomatic until spread occurs. The five-year survival for patients with metastatic disease is around 30%, diminishing to 4% in patients with very advanced disease.⁶

3. Are there effective treatments for the disease available to use after early detection?

Possibly yes. The assumption that early detection of ovarian cancer improves mortality is based on indirect evidence looking at survival rates in case series. The five-year survival rate of Stage I disease (cancer limited to the ovary) ranges from 66% when treated by surgery alone,⁶ to 90% with surgery and adjuvant chemotherapy.⁷ The corresponding rates for advanced stage disease are dismal as noted above. From such data we conclude that early detection and treatment may be beneficial.

From the Division of General Internal Medicine, P.O. Box 3375 DUMC, Duke University Medical Center, Durham 27710.

These conclusions must be viewed with caution; data from case series investigations may be influenced by *lead-time* and *length-time* bias. To illustrate these terms, let's assume that no treatment of ovarian cancer changes the ultimate outcome. In that case, early detection of the cancer may appear to give longer survival because the diagnosis was made earlier in the course of the disease, increasing the total time from diagnosis to death. This is called *lead-time bias*—the false appearance of improved survival due to early detection. Patients do not live any longer, just longer with *diagnosed* disease.

As we mentioned above, ovarian cancer is heterogeneous; some cancers progress very slowly and others very rapidly. *Length-time bias* occurs because slower-growing tumors are more likely to be discovered by screening tests than are rapidly-growing tumors (rapidly-growing tumors often are discovered during the time interval between screening tests because they produce symptoms). Since patients live longer with slowly progressive tumors, the discovery of more slowly growing tumors during screening leads to the erroneous conclusion that early detection and treatment prolong survival. In fact, all that we have done is select out a less malignant form of the disease by screening.

Screening Test Considerations

1. Are screening tests with acceptable sensitivity and specificity available to detect the target disease?

Yes, but . . . There have been three proposed methods of screening for ovarian cancer: the pelvic examination, the pelvic ultrasound, and the CA-125 blood test. None has been proven reliable in detecting early disease.

The pelvic examination can reveal ovarian masses, depending upon the skill of the examiner. Unfortunately, even skilled clinicians usually detect only ovarian cancers that have already disseminated.⁴ Early detection of limited cancer cannot be reliably achieved by pelvic examination.

The sensitivity of transabdominal and transvaginal pelvic ultrasound has been estimated from studies of patients with known cancers and from screening trials of asymptomatic patients. In women with known malignancies, sensitivity of ultrasound ranges from 80-100%, but its sensitivity for detecting *early* disease is not known.^{8,9} Sensitivities as high as 100% have been reported for Stage I disease, but the number of patients screened was small and follow-up was limited.^{10,11} Estimates of specificity, also made during these same small studies of screened asymptomatic patients, range from a low of 76% (by transabdominal ultrasound) to a high of 97% (by transvaginal ultrasound).

The main problem with screening ultrasound is its poor positive predictive value. In one study of 805 *high* risk patients, screening ultrasound studies found a total of three ovarian cancers.¹² However, a total of 39 laparotomies were performed (36 "false positives" and three "true positives") resulting in a very low predictive value of 3/39 or 7.6%! This predictive value is even lower than that found in studies of ultrasound screening in *low-risk* populations.^{13,14}

The CA 125 antigen blood test detects components of malignant cells of coelomic epithelial origin, including Mullerian duct cells and cells lining the peritoneum, pleura and pericardium. Blood concentrations of CA 125 antigen are elevated in approximately 80% of epithelial ovarian cancers, but they are also elevated in a number of benign gynecological conditions, in hepatic cirrhosis, in pericarditis, and in pancreatic cancer.¹⁵ Estimates of the sensitivity of CA 125 antigen tests in women with known malignancy (using a criterion level of greater than 35 U/ml), range from 61% to 96%;¹⁶⁻¹⁸ estimates of specificity are uniformly excellent in the range of 97-99%.^{19,20}

Unfortunately, the CA 125 test also suffers from a very low positive predictive value. For example, in one prospective study of 1,010 asymptomatic women, only one of 31 abnormally elevated CA 125 values was due to cancer,²⁰ a positive predictive value of 3%! Even combining all

three screening tests (pelvic examination, ultrasound and measurement of CA 125 antigen) resulted in a predictive value of only 10%.²⁰

Thus, while ultrasound and CA 125 antigen tests have fair to good sensitivity and specificity, the low prevalence of ovarian cancer leads to predictive values of positive test results that too low to serve as screening tools.

2. Can an appropriate population of high risk patients be identified to undergo screening?

Yes, in a very limited sense. Ovarian cancer risk increases with age.¹ There is also evidence that the risk for developing ovarian cancer may be inherited. Women at highest risk are those with certain "hereditary ovarian cancer syndromes" whose lifetime probability of developing ovarian cancer may be as high as 50%.²¹ These syndromes are extremely rare, however, and probably account for no more than 1% of all cases of ovarian cancer. Women who do not have one of these syndromes, but who do have a "family history" of ovarian cancer in a first- or second-degree relative also have an increased risk although the precise degree of risk is not known. If more than one relative is affected, the risk is further increased.²²

3. Do the benefits of screening justify the costs of the screening strategy?

Probably not. Because of the relatively low incidence of ovarian cancer, any screening test will result in a tremendous number of false positive results. The consequences of these false positive tests are substantial because surgery is required to investigate all positive test results. A recent decision analysis evaluated competing choices: no screening versus screening with CA 125 and transvaginal ultrasound. The authors concluded that screening would have a limited effect on life-expectancy and so could not be recommended.²³

Recommendations

Professional organizations have not recommended screening for ovarian

cancer. In fact, the US Preventive Services Task Force and the American College of Obstetrics and Gynecology specifically do *not* recommend routine screening for ovarian cancer.²⁴ The American Cancer Society recommends periodic pelvic examinations but has published no specific guidelines for ovarian cancer screening. It may be prudent to screen women with the "inherited ovarian cancer syndrome," but Susan does not need to be screened for ovarian cancer. □

In our next paper in this series on screening for disease, we will discuss the following case:

Susan's father is 63 years old. Recently he has heard on radio and television talk shows that a new test, the Prostate Specific Antigen (PSA), is now available to check for prostate cancer. During his general check-up visit to your office, he mentions this test and wants to know more. He is in excellent health and his urinary review of systems reveals only a slight decrease in the intensity of his urinary stream. On examination he has moderate prostate enlargement but no palpable nodules. His stool test is Hemoccult negative. The remainder of his examination is normal.

Should you order a PSA determination?

References

1. American Cancer Society. Cancer statistics: 1989. *CA* 1989;39:3-20.
2. The Surveillance Program, Division of Cancer Prevention and Control. Cancer Statistics Review 1973-1987. Publication No. 90-2789. Washington, DC: National Cancer Institute, 1988.
3. American Cancer Society. Cancer Facts and Figures—1991. Chicago, IL: American Cancer Society; 1991, p 9.
4. Griffiths CT, Parker L. Cancer of the Ovary. In Knapp RC, Berkowitz RS (eds). *Gynecologic Oncology*. New York: MacMillan; 1986, pp 313-375.
5. Tobacman JK, Greene MH, Tucker MA, et al. Intraabdominal carcinomatosis after prophylactic oophorectomy in ovarian cancer prone families. *Lancet*. 1982;2:795-7.
6. Richardson GS, Scully RE, Nikrui N, et al. Common epithelial tumors of the ovary. *N Engl J Med* 1985;312:415-24.
7. Young RC, Walton LA, Ellenberg SS, et al. Adjuvant therapy in Stage I and Stage II epithelial ovarian cancer. *N Engl J Med* 1990;322:1021-7.
8. Benacerraf BR, Finkler NJ, Wojciechowski C, Knapp RC. Sonographic accuracy in the diagnosis of ovarian masses. *J Reprod Med* 1990;46:491-5.
9. Granberg S, Norsrom A, Wikland M. Tumors in the lower pelvis as imaged by vaginal sonography. *Gynecol Oncol* 1990;37:224-9.
10. Bourne TH, Whitehead MI, Campbell S, et al. Ultrasound screening for familial ovarian cancer. *Gynecol Oncol* 1991;43:92-7.
11. Van Nagell JR, DePriest PD, Puls LE, et al. Ovarian cancer screening in asymptomatic postmenopausal women by transvaginal sonography. *Cancer* 1991;68:458-62.
12. Andolf E, Svalenius E, Astedt B. Ultrasonography for early detection of ovarian carcinoma. *Br J Obstet Gynecol* 1986;93:1286-9.
13. Goswamy RK, Campbell S, Whitehead MI. Screening for ovarian cancer. *Clinics Obstet Gynecol*. 1983;10:621-43.
14. Campbell S, Bhan V, Royston J, et al. Screening for early ovarian cancer. *Lancet* 1988;1:710-1.
15. Jacobs I, Bast RC. The CA 125 tumour-associated antigen: a review of the literature. *Human Reproduction*. 1989;4:1-12.
16. Einhorn N, Bast RC, Knapp RC, et al. Preoperative evaluation of serum CA 125 levels in patients with primary epithelial ovarian cancer. *Obstet Gynecol* 1986;67:414-6.
17. O'Connell GJ, Ryan E, Murphy J, Prefontaine M. Predictive value of CA 125 for ovarian carcinoma in patients presenting with pelvic masses. *Obstet Gynecol* 1987;70:930-2.
18. Mogensen O, Mogensen B, Jakobsen A. CA 125 in the diagnosis of pelvic masses. *Eur J Cancer*. 1989;1187-90.
19. Zurawski VR, Sjoval K, Schoenfeld DA, et al. Prospective evaluation of serum CA 125 levels in a normal population, Phase I: the specificities of single and serial determinations in testing for ovarian cancer. *Gynecol Oncol* 1990;36:299-305.
20. Jacobs I, Bridges J, Reynolds C, et al. Multimodal approach to screening for ovarian cancer. *Lancet* 1988;268-71.
21. Lynch HT, Conway T, Lynch J. Hereditary ovarian cancer: pedigree studies, Part II. *Cancer Genet Cytogenet* 1991;52:161-83.
22. Kerlikowske K, Brown JS, Grady DG. Should women with familial ovarian cancer undergo prophylactic oophorectomy? *Obstet Gynecol* 1992;80:700-7.
23. Schapira MM, Matchar, DB, Young, MJ. The effectiveness of ovarian cancer screening: A decision analysis model. *Ann Intern Med* 1993;118:838-43.
24. US Preventive Services Task Force. Screening for ovarian cancer. In Fisher M, ed. *Guide to Clinical Preventive Services*. Baltimore MD: Williams and Wilkins, 1989, pp. 81-5.

We've Been Protecting Professional Reputations For More Than 50 Years

With the comprehensive insurance program that includes the flexible coverages and unique services doctors in North Carolina value:

- Local claim and risk management services
- The expertise of specialized defense counsel

Put the unique services of The St. Paul behind your professional reputation. And get the financial strength of the insurance company with more than \$13 billion in assets.

Ask your independent insurance agent about The St. Paul. Or call Cherie Turner in The St. Paul's Charlotte Office at (704) 554-1220 or 1-800-432-6684.

After all, your reputation depends on it.



**Yours Deserves The Backing
Of A Multi-Billion Dollar Company**

The St Paul

St. Paul Fire and Marine Insurance Company



Because One Size Doesn't Fit All...

Eli Lilly and Company can suit all your needs with the most complete line of human insulins available.

Featuring Humulin 70/30* and our latest addition to the premixed line, Humulin 50/50† —especially useful in situations in which a greater insulin response is desirable for greater glycemic control.



Humulin® 
human insulin
(recombinant DNA origin)

*Tailor-made options in
insulin therapy*

WARNING: Any change of insulin should be made cautiously and only under medical supervision.

*Humulin® 70/30 (70% human insulin isophane suspension, 30% human insulin injection [recombinant DNA origin]).

†Humulin® 50/50 (50% human insulin isophane suspension, 50% human insulin injection [recombinant DNA origin]).



Global Excellence in Diabetes Care
Eli Lilly and Company
Indianapolis, Indiana
46285

Screening for Prostate Cancer Utilizing the Prostate-Specific Antigen (PSA)

Edward C. Halperin, M.D.

The American Cancer Society recommends that men over the age of 50 undergo annual rectal examination and measurement of prostate specific antigen (PSA) concentration in blood as screening tests for prostate cancer. The Society's recommendation may persuade family physicians and internists that routine use of the PSA blood test is beneficial. Furthermore, the Society's recommendation may create a legal standard that would support a charge of negligence against physicians who do not administer the test.

Despite the alleged benefits, questions have been raised about the reliability of the PSA test, about possible related expenses, about the necessity of treatment of prostate cancer in certain men, and about complications of treatment. All of these questions will become more prominent with the widespread use of screening. To explore these questions, the *North Carolina Medical Journal* invited four experts to comment on the use of PSA for prostate cancer screening.

Mitchell S. Anscher, M.D.

Assistant Professor,

Duke University Medical Center, Durham, NC

Prostate cancer is the most common cancer in men: in 1993, 165,000 new cases will be diagnosed and 35,000 men will die from this disease. We anticipate that the incidence and number of deaths from prostate cancer will continue to increase. The recent development of transrectal ultrasonography (TRUS) and the discovery of prostate-specific antigen (PSA) have led to widespread screening for prostate cancer in the community.

Valid prostate cancer screening programs must meet two criteria: (1) The screening must detect tumors which are curable (i.e., still confined to the prostate) and which would, if left untreated, prove fatal. (2) There must be treatment available which, if implemented when the disease is confined to the prostate, can produce a longer survival and better quality of life than does no treatment. Have these conditions been met? The answer is a resounding "NO!"

There is evidence that the combination of digital rectal examination, PSA, and TRUS can improve our ability to detect prostate cancer that is still confined to the prostate.

But no one has shown that treatment of these early stage cancers results in improved survival over observation alone. Several recent studies of patients with early stage prostate cancer detected by digital rectal examination, suggest that neither radiotherapy or radical prostatectomy affect the risk of dying of prostate cancer (with or without treatment, less than 10% of those studied died of prostate cancer during 10 years of follow up). Whether these findings also apply to early cancers detected in screening programs remains to be determined. Until such data become available, the value of screening for prostate cancer remains unproven and cannot be routinely recommended.

In spite of the lack of evidence to support routine screening for prostate cancer at this time, it remains a highly charged, emotional issue because such screening has been widely publicized and there has been a resulting great demand from patients to be screened. The asymptomatic man with a non-palpable prostate cancer found by "screening PSA" during a routine physical examination is now one of the most common categories of prostate cancer patients referred to me for radiotherapy. Most of these men are over 70 years old, an interesting observation considering that the National Prostate Cancer Detection Project excluded men over age 70. But once a diagnosis of cancer has been made, it is very difficult to convince patients that they should not be treated, perhaps as a result of our own biases against non-treatment.

From Department of Radiation Oncology, Duke University Medical Center, Durham, NC 27710.

There is a "downside" to indiscriminate screening for prostate cancer, namely the costs. We must consider the emotional trauma associated with the diagnosis of cancer, the potential for physical injury resulting from treatment (the 5% to 10% long-term complication rate from radiotherapy or radical prostatectomy may exceed the risk of dying from the disease), and the financial costs (\$15,000 for radiotherapy, \$18,000 for radical prostatectomy, and up to \$6,000/year for hormonal therapy).

In summary, the greater risk to the American male in 1993 may come not from prostate cancer itself, but rather from over-diagnosis and over-treatment. As physicians, we must decide what to tell our patients who come to be examined for prostate cancer. I believe that the honest approach is to inform the patient that, in spite of the American Cancer Society's recommendation, there is no proof that they will live longer if an early stage prostate cancer is detected and treated. They should be informed that this issue remains a subject of intensive medical research, but until this research is completed, routine screening with annual PSA cannot be recommended.

Robert W. Fraser, II, M.D.,
Carolinas Medical Center, Charlotte, NC

There is no sense in screening patients for a disease that you will not treat if diagnosed. Dr. Willet Whitmore, Jr. has pointed out that, due to the natural history of the disease as well as competing mortality, deferred treatment of early stage prostate carcinoma gives ten year, cancer-specific survival rates equal to aggressively treated patients. Many urologists feel that patients should not be aggressively treated for early prostate carcinoma unless they are expected to live at least 10 years. It follows that patients with a life expectancy of less than 10 years should not be screened with PSA tests. Patients with more advanced (Stage C or D) disease have symptoms or the cancer is detectable on digital rectal exam; these conditions do not require routine PSA screening for detection.

Even for patients with a 10 year life expectancy, PSA screening presents problems. It may be true that PSA more accurately predicts the presence of prostate cancer than mammography does breast cancer, but we are still left with the dilemma of who to treat. Some 36,000 men will die from metastatic prostate carcinoma in 1993, but hundreds of thousands will die with clinically undetected prostate carcinoma. There appears to be a relatively small fraction of patients with aggressive, life-threatening prostate carcinoma and a much larger group of men with clinically indolent disease. While clinical stage and Gleason's grade can help to separate out the more aggressive tumors, currently we are not capable of clearly distinguishing these two populations. Therefore, if the patient has a 10 year life expectancy, most urologists feel that even the earliest, most well-differentiated tumors ought to be treated aggressively. Certainly the PSA screening net will detect many patients in

this category. PSA screening is probably in part responsible for the increased number of radical prostatectomies performed in the U.S. during the last several years.

A recent article by Fleming and colleagues (JAMA 1993;269:2650-8) suggests that prostate cancer is treated too aggressively in this country. It is not hard to understand why clinicians err on the side of over-treatment of early prostate cancer. Both physicians and the public believe that early detection and treatment leads to increased cure. With the specter of 36,000 prostate cancer deaths each year, the public has a justifiable fear of this disease. It is hard to choose conservative management when the patient is pushing hard for treatment. There are also financial incentives to treat and medical-legal disincentives in opting for conservative care. Dr. Whitmore states, "If and when conservative management is advised and fails, both patient and physician inevitably wonder whether alternative treatment would have been better—even though the evidence for such assumption is lacking." Now patients will begin to ask "Why have I been getting these screening exams if we are not going to do anything about it when we find it?" Convincing the patient to accept conservative treatment will become an even greater challenge in an era of universal PSA screening.

The ultimate test of any screening exam is that it should lead to a decreased mortality in the screened population. Whether the PSA test will join that small and elite group that appears to meet that standard (including PAP smears, blood pressure screening, and mammograms in women over 50) remains to be proven. In the meantime, with the American Cancer Society advocating universal PSA testing of men over 50 years old, it is going to be hard to convince patients that the test is not in their best interests. Nonetheless, physicians should at least try to convince patients with limited life expectancy that PSA screening is a waste of time and money. If we can't convince them not to get the test, it is going to be even harder to convince them that an elevated level should not be worked up or an occult carcinoma not be treated.

Charles C. Thomas II, M.D.,
Regional Oncology & Hematology Associates,
Asheville, NC

We have discussed PSA screening in our multi-specialty group and held a conference on the subject as a part of a hospital Cancer Conference. It is our view that PSA screening of appropriate patients and PSA follow-up in prostate cancer patients is a valuable adjunct to evaluation and care. PSA screening has some inaccuracies but, combined with a digital rectal examination and particularly with a patient's overall evaluation, is valuable.

The criticism that we do not know what to do with very early stage prostate cancer in younger men is not a valid criticism of the test. PSA screening will not detect all cancers of the prostate, but is helpful as a part of a total examination similar to the way that we use mammography. I would

summarize our views on PSA screening in the treatment of early prostate cancer by saying that it allows the patient therapeutic options and a chance for better treatment outcome. Our job as physicians is to give the patient accurate information about the treatment choices so that he can make a more informed decision.

Independent of screening, PSA testing of patients with known prostate cancer can help both with prognosis and the search for metastatic disease when curative treatment is contemplated. Clearly, a patient with a markedly elevated PSA determination and an equivocal bone scan deserves further evaluation before embarking upon a long course of potentially toxic treatment in hopes of cure. We feel that serial PSA determinations are at least as helpful and probably more accurate in following treated prostate cancer patients than our previous practice of routine nuclear medicine bone scans. And it is available at a fraction of the cost of a bone scan. Of course, PSA determinations alone are not adequate follow-up. That requires appropriate history, physical examination (including a digital rectal examination) with PSA determination as an adjunct.

**Philip J. Walther, M.D., Ph.D., FACS,
Professor of Surgery/Urology
and Assistant Professor of Pathology,
Duke University Medical Center, Durham, NC**

Early detection of prostate cancer is one of the most troublesome issues facing the medical profession and the health policy planners. Few would argue that serological measurement of prostate-specific antigen (PSA) is not the most sensitive "tumor marker" of localized prostate cancer; the real issue is whether it should be incorporated into a comprehensive prostate cancer screening program of national proportions.

Before the advent of PSA and endorectal ultrasonography, the digital rectal examination was considered the most sensitive method of detecting prostate cancer. The problem is the substantial subjectivity of such an examination. The typical internist or family practitioner struggles about what to do with patients who have borderline examinations. In contrast, the measurement of PSA offers several advantages: it is objective, quantitative, and can be obtained independently of the examiner's skill in digital examination of the prostate.

Despite its substantial potential utility, one of the major difficulties in using PSA is that it is not a tumor-specific marker. PSA is a serine protease present in normal prostatic epithelium as well as in most prostate cancers. One of the problems adversely affecting specificity is that patients with benign prostatic hyperplasia (BPH) can have an elevated serum PSA in the absence of cancer, and BPH is present to a variable extent in most men over the age of 60 years. PSA's sensitivity is compromised because of a substantial "background" of PSA generated from benign tissue. "Normal" ranges attempt to compensate for the contribution of benign

prostatic tissue to the serum PSA level. A concentration of 4 ng/ml is generally used as the threshold of abnormality for the Hybritek assay, but it clearly is not an absolute cutoff between benign and malignant. This is the problem! Clinically significant, palpable cancers may exist despite a "normal" PSA, and "benign" disease such as prostatitis or substantial BPH can cause significant elevation.

Critics charge that PSA should not be included in a screening program because of its relatively low specificity. While the highly publicized study of Catalona et al. (*N Engl J Med* 1991;324:1156-61) has often been quoted as substantiating the value of PSA for screening, only 22% of men who had mildly elevated PSAs between 4.0 and 9.9 ng/ml (6.5% of the study population) actually had cancer.

The combination of digital rectal examination, PSA, and endorectal prostatic ultrasonography can diagnose prostate cancer at a higher rate than digital rectal examination alone. However, many patients so diagnosed have low volume disease—disease with little risk of rapid progression (disease extent or cancer volume is the strongest predictor of treatment outcome following radical prostatectomy). It is uncertain whether aggressive treatment of low-volume-cancer patients will have any impact on their survival. Screening the general population of men aged 50 to 70 (as the American Cancer Society currently recommends) will undoubtedly uncover many such low volume patients. Will we "cure" them before their disease becomes more extensive, or will we merely intervene needlessly? This question is unanswered although expectant management of low grade prostate carcinomas is being investigated in Europe.

At present, we do know that the cost consequences of aggressive screening are indeed formidable. Optenberg and Thompson (*Urol Clin of N Amer* 1990;17:719-37) calculated that screening using a PSA level of 4 ng/ml and then treating all men (using standard treatment algorithms) aged 50 to 70 would cost 28 billion dollars—a staggering figure when one recognizes that the total cost for prostate cancer therapy in 1990 was only 255 million dollars! Comprehensive testing should only be incorporated into disease prevention strategies after a randomized trial has shown that screening improves survival compared to an unscreened population. We do not yet have such proof for PSA and prostate cancer.

Cancer can be sought through pure screening of a general population, through coordinated longitudinal screening programs (which are rarely done), and through "case finding"—the application of a test to evaluate symptoms suggesting the diagnosis of cancer. This latter process remains the most common way in which cancers are diagnosed. However, the "patient-driven" request for PSA is a controversial but increasingly common phenomenon, driven by "public service messages." As a result, physicians often see extremely elderly patients—many with significant comorbidities—who want to be screened for prostate cancer. The conflict is immediate. The physician wants to accommodate the patient's request, but does not want to pursue the diagnosis. The workup of abnormal PSA results is expen-

sive, and what do you recommend to a patient who is a very poor candidate for aggressive therapy? "You've got cancer, but don't worry about it!" The psychological impact of the whole screening process is a hidden trap only now being appreciated. Dropping in to see the family doctor for a casual PSA is not a "freebie!"

In the absence of clear evidence that prostate cancer screening increases the rate of cure rather than just increasing the time between detection and cancer death—the so-called lead time bias—my recommendation is for methodical involvement of the patient's participation before embarking on a hunt for prostate cancer with PSA. It is not appropriate for the physician to recommend that all patients seeking well-patient checkups have a PSA drawn unless the patients are aware of the controversy that now surrounds prostate cancer screening and the "garden path" down which they may be led. A "quasi-informed consent" process seems appropriate. First, however, the physician must find out if there are any new obstructive or irritative voiding symptoms; if so, testing becomes "case finding" and not screening. Secondly, if the patient is not likely to survive 10 years because of comorbid factors or the patient's present age, it is hard to justify the search for occult prostate cancer and the patient should be told so. The elderly patient should be told that over 65% of octogenarians have "latent" prostate cancer at autopsy, and it is unlikely to have any health conse-

quences. Thirdly, risk factors need to be assessed. Familial linkage has not been statistically confirmed, but if a family history exists, especially of prostate cancer before age 65 years, it seems appropriate to use more aggressive "early detection" protocols. African-Americans appear to have a higher risk, and so increased suspicion for prostate cancer may be relevant. In high risk groups, a longitudinal program of periodic evaluations (perhaps as often as once a year) should be instituted if "screening" is to be entertained at all. Clearly, patients will continue to clamor for PSA screening; the physician must provide a balanced perspective of the value of "early detection" strategies. With such information, the patient becomes a participant in the decision-making process. □

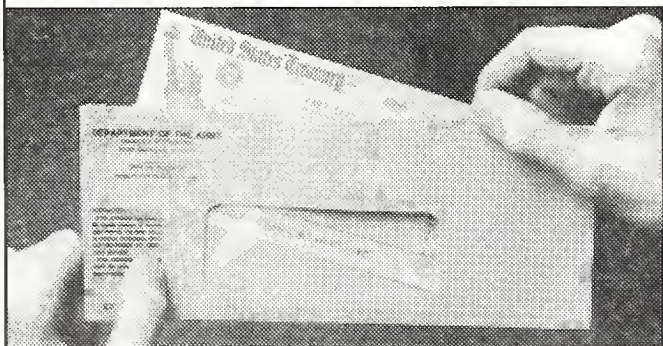
Editor's Note:

The question of screening for prostate cancer (to PSA or not to PSA) is very much with us. Drs. Wong and Feussner have been providing us their thoughts on screening for disease and have already programmed prostate cancer screening as their next topic. Their review of the evidence for and against screening and the answers to their "six questions" will appear in the November issue of the *Journal*.

RESIDENT ALERT: IF YOU COULD USE OVER \$25,000 A YEAR— ANSWER THIS AD.

The U.S. Army's Financial Assistance Program (FAP) will subsidize training in certain specialties totaling over \$25,000 a year.

Here's how it breaks down - an annual



grant, plus a monthly stipend and reimbursement of approved educational expenses.

You will be part of a unique health care team where you will find many opportunities to continue your education, work at state-of-the-art facilities, and receive outstanding benefits.

So, if you are a resident who could use over \$25,000 a year, contact an Army Medical Counselor immediately.

Call Collect 804-771-2354

ARMY MEDICINE. BE ALL YOU CAN BE.®

Pulmonary Surfactant

A Historical Perspective of How It Came to be Used in the Treatment of Respiratory Distress Syndrome in the Neonate

Robert S. McGee, Jr., Ph.D., MS III

Respiratory distress syndrome (RDS) is a common and life-threatening complication in newborn and premature infants. Despite recent great improvements in neonatal intensive care, it continues to claim approximately 25,000 lives each year in the United States. In 1991, North Carolina had estimated 2,000 cases of RDS. Although several factors contribute, clinical observations and experimental evidence now clearly indicate that the major fundamental defect leading to RDS is a deficiency of pulmonary surfactant.

Since its discovery in the mid-1950s, research efforts have led to the biochemical characterization, synthesis and subsequent animal and clinical trials of surfactant for the treatment of RDS. In 1990-91, the Food and Drug Administration approved the use of surfactant for RDS. In this paper I review the basic and clinical literature and provide a historical account of surfactant from discovery to its present use in treating RDS.

Surface Tension and the Concept of a Pulmonary Surface-Active Molecule

The first person to hypothesize the existence of a pulmonary surface-active

molecule, later to be known as surfactant, was K. Neergaard in 1929.¹ Neergaard was graduated from the University of Zurich in 1917 and moved to Basel in 1922 to work with the well-known internist, Professor Staehelin. There he met Dr. Karl Wirz, a pulmonary physiologist who was attempting to measure changes in pleural pressure during respiration. Neergaard became intrigued by the mechanics of respiration and joined Wirz to study first lung elasticity and then resistance to flow in the air passages of normal humans and those with asthma or emphysema. Neergaard postulated that the surface tension between the alveolar epithelium and alveolar air played an important role in the elasticity of the lungs.

Surface tension refers to the force exerted by a fluid on itself when exposed to the environment. For example, when water forms a surface with air, the water molecules on the surface of the water are increasingly attracted to each other. As a result, the water surface is always attempting to contract. In the lung, the humidified air lining the alveoli forms a water-tissue interface and creates surface tension. The net effect of surface tension in the lung is to cause contraction of the alveoli and even alveolar collapse (as in atelectasis).

To study the influence of surface tension on contractility, Neergaard measured the pressure-volume curve of the lung when it was air-filled and when it was fluid-filled.^{1,2} By filling the

lung first with air, and then with 7% gum arabic/Tyrodé's solution, he could measure the effect contributed by the air-tissue interface. Then, by subtracting the two measurements, he was able to quantify the force exerted by surface tension. He found that, in all states of expansion, surface tension was responsible for more of total lung contraction than was tissue elasticity. He had successfully demonstrated and quantified the contribution of surface tension to respiration and showed that it was an important force to be considered during inspiration and expiration.

From additional work, he concluded that the surface tension of alveoli was lower than that of other body fluids because of the accumulation of surface-active substances. He felt that "this lower tension would be useful for the respiratory mechanism because without it pulmonary retraction might become so great as to interfere with adequate expansion."¹ In further experiments comparing the surface tension of lung to other tissues (muscle, spleen, liver, heart), he found no appreciable differences, thus leaving his hypothesis unproven. Regrettably, Neergaard did not pursue this topic further, nor did he publish another paper on the topic of the lung. In 1929, he moved back to Zurich to pursue the relationship of medicine to philosophy, politics and social problems. Nearly three decades passed before the topic was addressed again.

From the Bowman Gray School of Medicine of Wake Forest University, Winston-Salem 27157.

The Discovery of Surfactant

Several events set the stage for the discovery of surfactant. Pediatricians and obstetricians became interested in the diagnosis and treatment of atelectasis of the newborn and in the pathologic state of the lungs of those who died with this syndrome. Typically these infants had severe respiratory distress at birth and died shortly thereafter. Pathologists termed the syndrome "hyaline membrane disease" because of the presence of an eosinophilic material, which resembled a membrane, lining the alveolar epithelium. These membranes had been described as early as 1903,³ although no cause had been found for their development.

In 1947, Gruenwald,⁴ devised experiments to compare the smallest pressures needed to expand nonaerated lungs of stillborn infants with those of infants dying shortly after birth. Apparently unaware of the work of Neergaard, Gruenwald used a model similar to Neergaard's, inflating the lungs first with air and then with fluid. He, too, concluded that there is a surface tension at the air-tissue interface, but he proceeded further to see whether he could decrease the surface tension in hopes of being able to inflate the lung at lower pressures. He introduced an aerosol of amyl acetate into the lung or rinsed the tissue in amyl acetate and then forced air into the lung. In both cases, there was a marked reduction in the pressure needed to inflate the lungs. He suggested that the addition of surface-active agents to the infant's inspired air might help relieve atelectasis in newborn infants. Gruenwald, however, was a pathologist and had no way to put his suggestion into action. His suggestion apparently did not come to the attention of clinicians either, as an additional twenty years lapsed before beginning clinical trials of surface-active agents.

The first major breakthroughs leading to the characterization of surfactant occurred in the mid-1950s in the work of Radford,⁵ Prattle,⁶ and Clements.⁷ It is worth noting here that the research by

all of these investigators was funded by the chemical warfare laboratories of the United States and England. Their mission was to prevent, diagnose and treat pulmonary damage resulting from the new war gases. These investigators did not set out to find the nature and cause of the neonate RDS, but their work laid the foundation for the discovery of surfactant.

Radford⁵ wanted to measure the total surface area of the alveoli in the mammalian lung. He believed that histological methods overestimated the number of alveoli and the total alveolar surface. Instead, he proposed using a model based on surface tension and energy to estimate the total alveolar surface area. By making assumptions about the values for the surface tension and energy, he calculated the total alveolar surface area to be about one-tenth that calculated by histological techniques. He concluded "that none of the assumptions on which the surface energy method depends could account for this difference unless the lung surface were a semi-solid phase or consisted of a highly surface-active substance. Neither of these possibilities is at all likely."³ In effect, Radford wrongly accepted that his theory, assumptions and calculations were correct, and refused to accept the possibility of a highly surface-active molecule. As Comroe³ pointed out, Radford came to a fork in the road and took the wrong direction.

Prattle⁶ was interested in studying preamplifiers and electrodes, not pulmonary physiology. Early in his work, his investigations were hampered by the formation of small bubbles in the electrode. These bubbles eventually disappeared over time due to surface tension. He got the idea of measuring the surface tension of bubbles in order to solve the problems encountered while studying electrodes. As his model he chose the bubbles of pulmonary edema that formed following exposure of alveoli to phosgene gas. He mixed several antifoam agents with samples of tracheal foam from a rabbit suffering from pulmonary edema. The reagents had no affect. He concluded that antifoam agents were an ineffective

"(Prattle) had taken an unusual path to explore surface tension in the lung, but his work and hypotheses clearly set him on the correct fork in the road. Unfortunately, he did not follow up ... and surfactant remained an enigma."

treatment of phosgene-induced edema, but he was intrigued by these stable bubbles. Because the bubbles of foam had originated in the alveoli and, hence, must be covered with material lining the alveolar surface, he reasoned that this material must confer great stability on the bubbles. He pursued experiments to illustrate the appearance of this substance during development and, in 1958, demonstrated that the lung lining substance appeared late in fetal life in the guinea pig. He suggested that absence of the lining substance might be one of the difficulties with which a premature infant had to contend, and might even play a role in causing atelectasis in the neonate. Furthermore, the appearance of a hyaline membrane might be due either to a defective lining layer causing exudation of blood plasma or to excessive secretion of lining substance. He had taken an unusual path to explore surface tension in the lung, but his work and hypotheses clearly set him on the correct fork in the road. Unfortunately, he did not follow up on his hypotheses and surfactant remained an enigma.

Clements was intrigued by Prattle's observations on pulmonary edema and the presence of stable bubbles.³ At the time, he was measuring pulmonary tissue resistance and lung compliance in his studies on nerve-gas poisoning and its treatment. He was unhappy because

Prattle's results were only qualitative. He was also unhappy with Radford's conclusion that histologic estimates of lung area were so bad that they gave estimates ten times too high. He decided the time had come for quantitative measurement of pulmonary surface tension. Of crucial importance was Clements' decision not to use methods that provided a single static value of surface tension. He carefully evaluated Radford's data and calculated that the surface tension was not 50 dynes/cm at low volumes, as assumed by Radford, but fell to far lower values and, furthermore, that surface tension changed with changing lung volume. He concluded that a dynamic process was occurring and that a dynamic method was required to accurately measure surface tension during expansion and deflation of the lung. He built a balance that enabled him to make these measurements. In 1957, his results demonstrated a surface active material that had a variable effect on surface tension,⁷ the surface tension decreasing to as little as 10 dynes/cm when the surface film was compressed. Clearly, this was the anti-atelectasis factor that alveoli needed to remain open during complete expiration. Clements had discovered surfactant.

Avery and Mead: Lungs Without Surfactant

Once the anti-atelectasis factor had been described, Mary Ellen Avery (a pediatrician) and Jere Mead (an expert in lung mechanics) quickly proved that the underlying defect in neonates with hyaline membrane disease (RDS) was the absence of surfactant.⁸ Using Clements' method, they prepared lung extracts from term and premature infants who died of nonrespiratory causes and from infants who died as a result of RDS. They found that the lung extracts from premature infants and those with RDS had surface tensions greater than 20 dynes/cm, whereas surface tensions from normal lung were less than 10 dynes/cm. This suggested that the RDS was associated with the absence or

delayed appearance of surfactant. Finally, the cause had been elucidated.

The Cell Biology of Surfactant

A myriad of questions regarding the cell biology of surfactant needed answering: What type of cell produces it? What is its chemical composition? How is it secreted? Although I will not review of the extensive basic science literature regarding the cell biology of surfactant, I want to highlight a few seminal contributions.

Surfactant was isolated in 1961 in three different laboratories using three different extraction techniques.⁹⁻¹¹ Klaus et al. were the first to recognize that dipalmitoyl phosphatidylcholine (DPPC, then called lecithin and later dipalmitoyl lecithin) was a likely candidate molecule,^{1,11} and it was subsequently isolated by Brown¹² in 1964.

As early as 1954, Macklin¹³ had proposed that the type II alveolar cell secreted a substance onto the alveolar surface. He noted by light microscopy the presence of intracellular granules which sometimes appeared on the alveolar surface. That same year, Low¹⁴ and Schlipkoter¹⁵ characterized the lung epithelium at the ultrastructural level and described the intracellular granules as lamellar bodies. However, it was not until the 1970s that the entire secretory pathway of surfactant became known.

Chevalier and Collet¹⁶ showed that radiolabelled precursors of surfactant were taken up by type II alveolar cells and accumulated in the lamellar bodies, thus demonstrating that the cellular localization of surfactant was in the lamellar body. Mary Williams extended this observation by showing that the lamellar body was secreted onto the alveolar surface.¹⁷ Once there, the lamellar membranes unwound and became transformed into tubular myelin.¹⁸ The tubular myelin then lined the alveolar epithelium and served as the surface active agent.

The First Clinical Trial of Surfactant Treatment of RDS

The composition of surfactant turned out to be far more complex than imagined. It is a heterogeneous mixture of lipids (of which DPPC is the major constituent), proteins and ions. The non-lipid components are important to surfactant function as illustrated by experiments using the instillation of pure DPPC into the airways of infants suffering from RDS. In 1964, Robillard et al.¹⁹ administered synthetic DPPC to eleven infants suffering from RDS. Remarkably, only three infants succumbed to RDS and the remaining eight improved after therapy, but due to the small number of participants and the lack of a control group, the authors could not provide statistical confirmation of their findings. In 1967, Chu et al.²⁰ treated 27 infants who were carefully selected to meet criteria for RDS. They found that lung compliance (the change in lung volume per change in lung pressure) increased following administration of DPPC and these infants required less pressure to achieve a change in lung volume. Despite these encouraging results, gas transfer did not improve markedly in most infants following DPPC therapy. Although DPPC had the characteristics expected of a surface-active alveolar film, by itself DPPC was not a substitute for lung surfactant. The true nature of surfactant remained a question.

A partial answer came when investigators observed the consistent association of protein with the lipid fractions during DPPC purification. It was known that surfactant was rich in phospholipids, particularly DPPC, but there was disagreement as to whether associated lipoproteins served a physiological role. In 1972, King and Clements²¹ demonstrated that specific proteins promoted the ability of surfactant lipids to rapidly form a surface film and, by 1973, King et al.²² isolated and characterized the first of three apoproteins strongly associated with surface active material. Later, King and other investigators²³⁻²⁴ combined isolated surfactant apoproteins with synthetic lipids

and demonstrated improved lipid absorption in the presence of the surfactant proteins. Calcium also improved the ability of the lipid-protein complexes to form a surface film.²⁴

The First Successful Use of Surfactant for Treatment of RDS

Further trials of DPPC aerosols proved ineffective. In contrast, studies in premature fetal rabbits and lambs treated with "natural" surfactant (surfactant collected from the same species) provided evidence that administered surfactant could compensate for an endogenous deficiency.^{25,26} However, "natural" surfactants could not be used in humans due to possible side effects; an artificial or synthetic surfactant was needed to circumvent this problem.

In 1980, Fujiwara et al.²⁷ developed a mixture of naturally occurring surfactant lipids from bovine lung and synthetic lipids containing DPPC and phosphatidyl glycerol. The properties of the synthetic mixture closely resembled those of pulmonary surfactant. Having shown that the mixture was safe and that it improved pulmonary mechanics in premature rabbits,²⁸ they enrolled ten preterm infants with severe RDS into a limited study.²⁷ Following administration of this material (Surfactant-TA), all babies improved clinically; radiographic findings, arterial oxygenation and acid/base measurements indicated improved lung function. The infants required less oxygen and lower ventilator pressure. Eight of the infants survived, including five of six with birthweights less than 1500 gm; two died of unrelated causes (one from post-surgical complications and one from sepsis). Only one of the eight

survivors showed radiological evidence of bronchopulmonary dysplasia. The study was an astonishing success and a milestone in the treatment of RDS. The path was now clear for a promising new therapy.

Clinical Trials

Since 1980, a number of clinical trials have confirmed the work of Fujiwara and coworkers. Despite variations in patient selection criteria, the surfactant preparations used, and the time and dosage of surfactant administered, all trials have shown decreased morbidity and mortality and improved pulmonary function. It is not known whether all products provide equal benefits because direct comparisons of various preparations have not been performed. I cannot review all available preparations of surfactant currently under investigation, but will describe three.

Exosurf, produced by Burroughs Wellcome Company, is a totally synthetic material composed of DPPC, cetyl alcohol, and tyloxapol. In late 1990, after initial and randomized, controlled studies^{29,30}, Exosurf became the first pulmonary surface-active "drug" to receive approval from the United States Food and Drug Administration (FDA).

Survanta, a modification of Surfactant-TA, is an organic solvent extract of minced cow lung supplemented with DPPC, palmitic acid and tripalmitin. It contains two (SP-B and SP-C) of the three known apoproteins. It, too, has received extensive clinical investigation^{31,32} and received FDA approval approximately one year after Exosurf.

Curosurf is an organic solvent extract of porcine lung purified by liquid-

gel chromatography. Curosurf has only minor chemical differences from Survanta; it has a lower concentration of DPPC, but, like Survanta, contains apoproteins SP-B and SP-C. Curosurf is still in clinical trials³³ as an investigational drug.

Conclusion

Surfactant research has followed a remarkable growth curve. After the important discovery of surface tension by Neergaard in 1929 there was a hiatus of nearly thirty years. The concept of pulmonary surface-active substances blossomed in the mid-1950s when Radford recognized the possibility of surfactant, Prattle demonstrated its presence, and Clements directly showed its effect and significance. Despite less than promising results during the first trials of surfactant replacement, the elucidation of the cellular biology of surfactant set the stage for Fujiwara and colleagues who rescued ten premature infants from the severe effects of RDS by the administration of synthetic surfactant. The efforts of basic and clinical researchers came to fruition in 1990 when surfactant was approved by the FDA for the treatment of RDS. Many parents now breathe a little easier because their infants do not have to fight as hard for breath, and life, as they did only a few decades ago. □

Acknowledgment

The author wishes to acknowledge David Berry, M.D., for his editorial assistance with the preparation of this manuscript.

References

- 1 Tierney DF. Lung surfactant: some historical perspectives leading to its cellular and molecular biology. *Am J Physiol* 1989;257:L1-L12.
- 2 Comroe JH, Jr. Premature Science and Immature Lungs. Part I: some premature discoveries. *Am Rev Respir Dis* 1977;116:127-135.
- 3 Comroe JH, Jr. Premature Science and Immature Lungs. Part II: chemical warfare and the newly born. *Am Rev Respir Dis* 1977;116:311-323.
- 4 Greunwald P. Surface tension as a factor in the resistance of neonatal lungs to aeration. *Am J Obstet Gynecol* 1947;53:996-1007.
- 5 Radford EP, Jr. Method for estimating respiratory surface area of mammalian lungs from their physical characteristics. *Proc Soc Exp Biol Med* 1954;87:58-61.
- 6 Prattle RE. Properties, function and origin of the alveolar lining layer. *Nature* 1955;175:1125-1126.
- 7 Clements JA. Surface tension of lung extracts. *Proc Soc Exp Biol Med* 1957;95:170-172.
- 8 Avery ME, Mead J. Surface properties in relation to atelectasis and hyaline mem-

- brane disease. *Am J Dis Child* 1959;97:517-523.
- 9 Klaus MH, Clements JA, Havel RJ. Composition of surface-active material isolated from beef lung. *Proc Natl Acad Sci* 1961;47:1858-1859.
- 10 Pattle RE, Thomas LC. Lipoprotein composition of the film lining the lung. *Nature* 1961;189:844.
- 11 Buckingham S. Studies on the identification of an antiatelectasis factor in normal sheep lung. *Am J Dis Child* 1961;102:521-522.
- 12 Brown ES. Isolation and assay of dipalmitoyl lecithin in lung extracts. *Am J Physiol* 1964;207:402-406.
- 13 Macklin CC. The pulmonary alveolar mucoid film and the pneumocytes. *Lancet* 1954;1:1099-1104.
- 14 Low FN. The electron microscopy of sectioned lung tissue after varied duration of fixation in buffered osmium tetroxide. *Anat Rec* 1954;120:827-851.
- 15 Schlipkoter HW. Elektronenoptische Untersuchungen ultradünner Lungenschnitte. *Dtsch Med Wochenschr* 1954;79:1658-1659.
- 16 Chevalier G, Collet AJ. In vivo incorporation of choline-3H, lucine-3H, and galactose-3H in alveolar type II pneumocytes in relation to surfactant synthesis. A quantitative radioautographic study in mouse by electron microscopy. *Anat Rec* 1972;174:289-310.
- 17 Williams MC, Mason, RJ. Development of the type II cell in the fetal rat lung. *Am Rev Respir Dis* 1977;115(Suppl):37-47.
- 18 Williams MC. Conversion of lamellar body membranes into tubular myelin in alveoli of fetal rat lungs. *J Cell Biol* 1977;72:260-277.
- 19 Robillard E, Alarie Y, Dagenais-Perusse P, Baril E, Guilbeault A. Microaerosol administration of synthetic beta-gamma-dipalmitoyl-L-alpha-lecithin in the respiratory distress syndrome: A preliminary report. *Can Med Assoc J* 1964;90:55-57.
- 20 Chu J, Clements JA, Cotton EK, Klaus MH, Sweet AY, Tooley WH. Neonatal pulmonary ischemia. Part I: Clinical and physiological studies. *Pediatrics* 1967;40:709-782.
- 21 King RJ, Clements JA. Surface active material from dog lung. II. Composition and physiological correlations. *Am J Physiol* 1972;223:715-726.
- 22 King RJ, Klass DJ, Gikas EG, Clements JA. Isolation of apoproteins from canine surface active material. *Am J Physiol* 1973;224:788-795.
- 23 King RJ, Macbeth MC. Physicochemical properties of dipalmitoyl phosphatidylcholine after interaction with an apolipoprotein of pulmonary surfactant. *Biochim Biophys Acta* 1979;557:86-101.
- 24 King RJ, Macbeth MC. Interaction of the lipid and protein components of pulmonary surfactant. Role of phosphatidylglycerol and calcium. *Biochim Biophys Acta* 1981;647:159-168.
- 25 Enhorning G, Grossman G, Robertson B. Tracheal deposition of surfactant before the first breath. *Am Rev Respir Dis* 1973;107:921-927.
- 26 Adams FH, Towers B, Osher AB, Ikegami M, Fujiwara T, Nozaki M. Effects of tracheal instillation of natural surfactant in premature lambs. *Pediatr Res* 1978;12:841-848.
- 27 Fujiwara T, Chida S, Watabe Y, Maeta H, Morita T, Abe T. Artificial surfactant therapy in hyaline-membrane disease. *Lancet* 1980;1:55-59.
- 28 Fujiwara T, Maeta H, Chida S, Morita T. Improved pulmonary pressure-volume characteristics in premature newborn rabbits after tracheal instillation of artificial surfactant. *IRCS Med Sci* 1979;7:312.
- 29 Corbet A, Bucciarelli R, Goldman S, Mammel M, Wold D, Long W, The American Exosurf Pediatric Study Group I. Decreased mortality rate among small premature infants treated at birth with a single dose of synthetic surfactant: A multicenter controlled trial. *J Pediatr* 1991;118:277-284.
- 30 Long W, Thompson T, Sundell H, Schumacher R, Volberg F, Guthrie R, The American Exosurf Neonatal Study Group I. Effects of two rescue doses of a synthetic surfactant on mortality rate and survival without bronchopulmonary dysplasia in 700- to 1350-gram infants with respiratory distress syndrome. *J Pediatr* 1991;118:595-605.
- 31 Horbar JD, Soll RF, Sutherland JM, Kotagal U, Philip AGS, Kessler DL, et al. A multicenter randomized placebo-controlled trial of surfactant therapy for respiratory distress syndrome. *N Engl J Med* 1989;320:959-965.
- 32 Soll RF, Hoekstra RE, Fangman JJ, Corbet AJ, Adams JM, James S, et al. Multicenter trial of single-dose modified bovine surfactant extract (Survanta) for prevention of respiratory distress syndrome. *Pediatrics* 1990;85:1092-1102.
- 33 Collaborative European Multicenter Study Group. Surfactant replacement therapy for severe neonatal respiratory distress syndrome: An international randomized clinical trial. *Pediatrics* 1988;683-91.

Fighting allergies is no place for amateurs.

Serious allergies require serious care—the kind that only well-trained professionals can provide. But if we're going to knock-out allergies, we need team work! That's where the Asthma and Allergy Foundation of America can help.

We're dedicated to helping you help your patients. We offer a toll-free patient information number, a full range of educational materials for adults and children and special school and community programs. Plus, we can put them in touch with our nationwide network of chapters and support groups.

Let us help you win the fight! We've been serving asthma and allergy sufferers for more than 40 years. For more information about our services or professional memberships, call us today.

**ASTHMA & ALLERGY
FOUNDATION OF AMERICA**

1125 15th St. NW, Suite 502, Washington, DC 20005

1-800-7-ASTHMA

Dorma Con Pesce

Scombroid Ichthyotoxicosis

Ronald B. Mack, M.D.

This is a story about creatures of the sea and how some of them can cause significant unhappiness. I am not referring to the great white shark or killer whales or other large and scary underwater creatures. In my old neighborhood, when I was a young lad, fishing was not an option. The inner city left little opportunity for casting a line to catch a trout or a bass. Of course, we were made to eat fish, purchased from the fish market, because Mother believed it was "brain" food.

As I grew older, the subject of fish acquired a more sinister connotation. It was whispered around the 'hood, in hushed tones, that some of the more unsavory members of our part of the city had received fish, wrapped in newspaper and delivered to their homes. This was an ominous sign; it meant the recipient had angered some powerful "boss" and was in danger of acquiring a pair of cement loafers and being sent to spend eternity "sleeping with the fishes." Fortunately, ichthyotoxicosis, the subject of this paper, is not usually fatal, but it does make you think about what the finned meal on your plate may have in store for you.

Didn't you always believe that the only way a fish could hurt you was if the fish took a big bite out of you? Well, think again! It would not be too uncommon for you to become a victim if you took a big bite out of a fish — certain fish, that is. I will not speak much here

about the fugu,¹ an oriental delicacy that involves a bit of Japanese-roulette in order to achieve a rarified gustatory experience. The fugu is a puffer fish.² During its nonreproductive season you can enjoy a meal of fugu with impunity,³ but if you pick the wrong season to partake of this Japanese piscatorial delight, you will also partake of tetrodotoxin, a neurotoxin that results in a mortality rate of nearly 60%. No, in this little epistle I will discuss a far more common and much less exotic problem — scombroid fish poisoning.

Part of the initial education of health care professionals (and a larger part of the continuing education of the same) involves the learning of new words, often multisyllabic and unpronounceable. Try this on for size and fit — *ichthyotoxicosis*. The toxins possessed by vertebrate fish and inimical to humans can be divided into three large categories determined by the location of the toxin:⁴ (1) Ichthyosarcotoxins — poisonous chemicals contained in the muscles, viscera, skin or mucus membranes of fish — are the most common group. The scombroid, the cigatura and the puffer fish are the most common causes of ichthyosarcotoxism in the world. (2) Ichthyootoxins are bad stuff in the gonads of fish. (3) Ichthyohemotoxins are found in the blood of fishes. This is as good a time as any to order lunch — "Carmine, lo voglio mangiare un' buon vitello alla marsala (veal)." "No, no — non voglio mangiare il pesce oggi!! (No fish today-ick!!)."

Scombroid fish poisoning occurs after eating poorly preserved (that is, "spoiled") representatives of the

Scombridae and Scomberesocidae families.^{5,6} (They lived upstairs of the Baccalas, on the third floor, remember them?) These include the tuna, albacore, bonito, skipjack, mackerel, saury and wahoo. Non-family members, such as the mahi-mahi, amberjack, marlin, herring, bluefish, sardines and anchovies are also potential causes, but freshwater fish do not cause this disease. Scombroid fish poisoning is the most common form of ichthyotoxicosis in the world.

The clinical syndrome of scombroticism is usually mild and self limited and primarily involves the gastrointestinal and nervous systems and the skin.^{3,5} Adverse clinical effects develop relatively quickly — in a matter of minutes to a few hours after eating the fish. The initial complaints are headache, diffuse erythema, nausea, vomiting, diarrhea, abdominal cramps, burning of the mouth and dysphagia. Flushing of the face, neck and upper trunk is the most consistent and characteristic symptom.⁷ Less common adversities include bronchospasm, generalized urticaria, and hypotension. Even less common, fortunately, is a "toxic myocardial insult" resulting in a rapid, weak pulse, arrhythmias and palpitations.⁸ Serious problems are rare and tend to occur in patients already burdened with pre-existing cardiorespiratory diseases. To date, there are no reported fatalities.

The exact cause of the toxic event is not entirely clear.^{5,6} The Centers for Disease Control refers to the causative agent as "scombrototoxin." It is not present when the fish are harvested, but is produced subsequently during spoilage. The guilty fish may appear per-

From the Department of Pediatrics, Bowman Gray School of Medicine, Wake Forest University, Winston-Salem, NC 27103.

fectly normal and have no bad odor. Worse luck, the toxin is remarkably heat stable and is not destroyed by cooking.⁵ What about sushi? No thanks, I prefer not to eat the bait.

Histamine was suggested as the possible toxin, as far back as the 1940s.¹⁰ The fish that cause scombroid poisoning uniformly contain ample supplies

Before we accept histamine as the sole cause of this clinical entity consider the following observations: (1) research scientists have been unable to reproduce the severe form of the disease even with massive doses of histamine; and (2) oral histamine is rapidly broken down in the intestine and the liver by enzymes such as diamine oxidase and histamine-N-methyltransferase. Current speculation suggests that histamine requires a second agent that potentiates its effect by inhibiting its gastrointestinal metabolism or by facilitating its absorption or both. This second agent or agents may be present in the spoiled fish.^{5,6}

Experts on scombroid fish poisoning are quick to point out that this intoxication is not an allergic reaction to a food.¹⁰ Yes, the symptoms are similar and antihistamines have a salutary effect on both conditions. Inquiring whether anyone else eating the same meal at the same time became ill makes the cause clearer. The group attack rate of scombroid fish poisoning is 50% to 100%, much higher than expected in food allergy. Analysis of the suspected fish for histamine found can confirm the diagnosis. Normal fish flesh contains less than 1 mg histamine per 100 grams.⁵ The FDA considers more than 50 mg per 100 grams of tuna to be a toxic level. Although impractical for most practitioners, measuring the urinary excretion of histamine by the poisoned patient can help pinpoint the causative agent. Blood histamine levels may be elevated.

The treatment of scombroid fish poisoning is non-specific. Most reported

cases are mild and self-limited, subsiding in eight to 10 hours, even untreated.^{11,12} Treatment with an antihistamine such as diphenhydramine produces rapid symptomatic relief.¹¹ Using ipecac to induce emesis is probably not a good move because symptoms develop fairly rapidly after ingestion. Activated charcoal could theoretically bind some of this toxin and thus decrease its absorption and is worth a try. Most patients will not require catharsis.

The newest therapy, suggested for severely poisoned patients who fail to respond to antihistamines, is intravenous cimetidine.¹² In the few cases in which this medication was used, the patients generally experienced complete and rapid resolution of symptoms with minimal adverse effects, but this can not be considered the treatment of choice at this time. One patient experienced a significant drop in blood pressure following cimetidine.

The experts suggest that this poisoning is very preventable.¹³ Prompt and proper refrigeration or icing of the fish from the time it is caught until it can be preserved, processed or cooked is the preferred method of prevention. If the fish is allowed to stand at room temperature for as little as three to four hours, enough toxin can be produced to cause disease.¹⁴

Thanks for inviting me to dinner. You say you're serving mahi-mahi? No thank you - no thank you, I'll pass. You are very gracious and thoughtful but Marcia Mack is serving manicotti tonight and it is to die for, figuratively of course. Buon appetito, y'all. □

“The guilty fish may appear perfectly normal and have no bad odor. Worse luck, the toxin is remarkably heat stable and is not destroyed by cooking.”

of free histidine that can be decarboxylated to form histamine by the enteric bacteria present in the spoiled fish. In other words, histamine is formed in foods largely from the growth of bacteria possessing the enzyme histidine decarboxylase. Needless to say, fish such as tuna contain high concentrations of histidine in their muscle tissues (the part you eat, dum-dum). The histidine serves as a substrate for bacterial histidine decarboxylase which converts histidine to histamine, which accumulates in the fish tissue, which you subsequently devour. Bacteria capable of quickly producing large amounts of histamine include *Morganella morganii*, *Klebsiella pneumoniae* and various other enteric gram negative rods.⁵

References

- 1 Goldrank L, Lewin N, Weisman R. The red snapper. *Hospital Physician* 1981, pp. 36-51.
- 2 Editors: Doull J, Amdur MO, Klaassen CD. Casarett and Doull's Toxicology, 4th ed. New York: Pergamon Press, 1991, p. 849.
- 3 Ellenhorn MJ, Barceloux DG. Medical Toxicology. New York: Elsevier, 1988, pp. 1197-8.
- 4 Hughes JM, Merson MH. Fish and shellfish poisoning. *N Eng J Med* 295:1117.
- 5 Teach SJ. Scombroid fish poisoning. *Clin Toxicology Review* 1993;15:1.
- 6 Morrow JD, Margolies GR, Rowland J, et al. Evidence that histamine is the active toxin of scombroid fish poisoning. *N Eng J Med* 1991;324:716.
- 7 Dickinson G. Scombroid fish poisoning syndrome. *Ann Emer Med* 1982;11:487.
- 8 Bryson PD. Comprehensive Review in Toxicology, 2nd ed. Rockville, MD: Aspen Publishers, Inc. 1989, pp. 607-8.
- 9 Taylor SL, Stratton JE, Nordless JA. Histamine Poisoning (Scombroid fish poisoning): an allergy-like intoxication. (Book/Journal?) 1989;27:225.
- 10 Taylor SL. Histamine food poisoning. *CRC Crit Rev Toxicology* 1986;17:91.
- 11 PoisindexR. Scombroid fish poisoning. *Micromedex Inc.* 1993;76.
- 12 Blakesly ML. Scombroid poisoning: prompt resolution of symptoms with cimetidine. *Ann Emer Med* 1983;12:104.
- 13 Scombroid fish poisoning. *MMWR* 1988;37:451.
- 14 Chan KT. Scombroid poisoning. *AM J PH* 1987;77:1335.

provide a free renewal service for all your subscriptions, no matter how they were originally ordered. You may take advantage of this service now, even if it is not time to order. Simply send in your mailing labels.

NCMS MAGAZINE PROGRAM
29 Glen Cove Avenue Glen Cove, NY 11542

NAME _____

ADDRESS _____

CITY _____ STATE _____ ZIP _____

TELEPHONE (_____) _____

CONTACT _____

☐ VISA

☐ M/C No

 Exp. Date _____

☐ Check enclosed payable to: NCMS Magazine Program.

NAME OF PUBLICATION	RENEWAL	YRS	PRICE
TOTAL			

Orders: Publishers take from 8 to 12 weeks to start & renew your subscriptions.
Terms: Subscriptions are one year unless otherwise noted.

JU93

Conflicts of Interest in Physician Ownership of Medical Facilities

A Clarification of Present AMA and North Carolina Medical Society Policy

John Glasson, M.D.

Since 1984, the Council on Ethical and Judicial Affairs (CEJA) of the American Medical Association has issued a series of reports and opinions on the conflicts of interest posed by physician ownership of medical facilities outside of the physician's primary practice location. This process culminated in the major and definitive *Report C*, approved by the AMA House of Delegates in December 1991, which established new ethical policy in this area.

Our Present Position

Report C recommends that:

1. Physician investment in health care facilities can provide important benefits for patient care. However, when physicians refer patients to facilities in which the physicians have an ownership interest, a potential conflict of interest exists. In general, physicians should not refer patients to health care facilities outside their office practice if they have an investment interest in but do not directly provide care or services in those facilities.

2. Physicians may invest in and refer to an outside facility, whether or not they provide direct care or services at the facility if there is a demonstrated need in the community for the facility. Needed facilities might not be built if referring physicians were prohibited from investing in the them. Needs exist when there is no facility of reasonable quality in the community or when use of existing facilities is onerous for patients. In such cases, the following requirements should also be met:

a. Individuals who are not in a position to refer patients to the facility must be given a bona fide opportunity to invest

in the facility, and they must be able to invest on the same terms that are offered to referring physicians. The terms on which investment interests are offered to physicians must not be related to the past or expected volume of referrals or other business from the physicians.

b. There is no requirement that any physician investor make referrals to the entity or otherwise generate business as a condition for remaining an investor.

c. The entity must not market or furnish its items or services to referring physician investors differently than to other investors.

d. The entity must not loan funds or guarantee loans for physicians in a position to refer to the entity.

e. The return on a physician's investment must be tied to the physician's equity in the facility rather than to the volume of referrals.

f. Investment contracts should not include "noncompetition clauses" that prevent physicians from investing in other facilities.

g. Physicians must disclose their investment interest to their patients when making a referral. Patients must be given a list of alternative facilities, informed that they have the option to use one of the alternative facilities, and assured that they will not be treated differently by the physician if they do not choose the physician-owned facility. These disclosure requirements also apply to physician investors who directly provide care or services for their patients in facilities outside their office practice.

h. The physician's ownership interest should be disclosed, when requested, to third party payers.

i. An internal utilization review program must be established to ensure that investing physicians do not exploit their patients in any way, such as inappropriate or unnecessary utilization.

j. When a physician's financial interests conflict so greatly with the patient's interests as to be incompatible, the physician must make alternative arrangement for the care of the patient.

Chairman, AMA Council on Ethical and Judicial Affairs, 615 Swift Ave., Durham 27701.

3. Physicians who invested in facilities under the Council's prior opinion, should reevaluate their activity in accordance with the present report and comply with the guidelines in this report to the fullest extent possible.

Note that CEJA did not call for an absolute ban on all investment in external medical facilities by referring physicians. Exceptions to the policy are listed along with the requirements to be met if exceptions are made.

Fallout from the CEJA Report

At the AMA meeting in June 1992, the House of Delegates, responding to a submission from the New Jersey delegation, softened its position by approving the following resolution:

RESOLVED, That the American Medical Association adopt the policy that medically necessary referrals by a physician to an off-site facility in which he/she has a financial interest is ethical if the patient is fully informed of the ownership interest and the existence of any available alternate facilities.

Adopting this resolution created widespread confusion as to the true meaning of current AMA policy. As a result, the Board of Trustees of the AMA and many constituent state societies rallied to the support of the originally defined CEJA policy. At its meeting in December, 1992, the AMA House of Delegates reaffirmed the recommendations of *Report C* of December 1991 and rejected the New Jersey position adopted six months earlier.

In November 1993, at its meeting in Pinehurst, the House of Delegates of the North Carolina Medical Society formally endorsed the 1991 (CEJA) policy by passing the following resolution:

RESOLVED, That the North Carolina Medical Society adopt the AMA policy on self-referral (Report C, Council on Ethical and Judicial Affairs, I-91) as its own policy.

The North Carolina delegation to the AMA gave strong support to the position of the CEJA at the References Committee hearings. Later, on the floor of the House along with most other state and specialty society delegates, we were instrumental in reaffirming the 1991 *Report C*.

Ethics into Law

Several State Legislatures have passed laws restricting (to varying degrees) referral by physician investors to outside medical facilities. Key to these restrictions is the question of

whether the physician renders service in the facility as an extension of his or her practice or merely receives income from referral to the facility. Currently pending in the North Carolina General Assembly is Senate Bill 8 whose short title is "No Self-Referrals/Health." This bill has been passed by the House of Representatives but not yet by the Senate. It has been extensively amended and prospects are that it will be amended further in the future. As proposed by Senate Bill 8, exceptions to the ban are much less extreme than those present in current AMA policy. Finally, Congressman Pete Stark has introduced a bill which will codify into national law many of the provisions of the December 1992 AMA position.

Final Comments

At the most recent AMA meeting in June 1993 the self referral issue was no longer on "center stage." Only one related Resolution was introduced at this meeting and it was defeated by the House of Delegates. It was introduced by a group of renal physicians who felt that current policy did not adequately protect them in the case of referral to dialysis centers in which they had invested. Similar questions were also raised by physicians involved in home infusion therapy.

The AMA Council on Medical Service issued the following statement defining "extension of practice." This report, along with individual consultation with CEJA staff at the AMA, helps in evaluating individual practice situations where potential inappropriate conflicts of interest exist:

"The personal provision or supervision by a physician of necessary care and services to an individual patient at a facility outside of that physician's office practice in which the physician has a financial or ownership interest. Such care and services must be provided or supervised on-site by the physician at the facility and must be within that physician's area of competence and recognized scope of practice."

CEJA has always recognized in its reports and opinions on this subject that there is some potential conflict of interest whenever a physician prescribes a service that he or she then carries out.

When services are rendered in a physician's office this conflict must be accepted in order to maintain convenience and efficiency. Since the physician's ownership of the facility is self evident, no notification of that fact to the patient is required.

The bottom line in this matter is the over-arching principle of medical ethics that the best interests of the patient must always be primary and that physicians' financial interests must always be secondary. □

Health Watch

VOLUME 54 / NUMBER 9 / SEPTEMBER 1993

Addictions

SEX ADDICTION

Carolyn F. Cordasco, EdM, CCSW

What is sexual addiction? It is a syndrome in which an individual is excessively preoccupied with sexual thoughts that persistently intrude and distract which may cause some individuals to become involved in repetitive compulsive sexual activity that becomes destructive. Often the individual feels self-hatred, guilt and passive rage that becomes unbearable and the ability to cope with stress is limited. They may withdraw and escape into a secret world of fantasy or by having a sexual "fix." Like chemical addiction, sexual addicts seek to alter their mood or self-medicate from undesirable emotions via sex. The sex addict feels different from and alienated from other people. Their sexual preoccupation interferes with their relationships (intimacy) and can affect their careers, finances, friendships and very often their physical safety. Many sex addicts take costly risks in their behavior that often lead to being arrested, suicide attempts, sexually transmitted diseases and at times a criminal environ-

ment. After sexually acting-out the sex addict will vow to quit; however, they are unable to do so despite their feelings of guilt and shame.

Although sex addiction appears to afflict more men, women are now being seen more and more in treatment as having sexual addictions. More often women addicts will have frequent and anonymous sexual encounters. For both sexes the addiction produces an adrenaline high or rush particularly if it is associated with the risk of being caught and punished. In many cases humiliation is seen as the fix. There appears to be intense sexual pleasure which features a long build-up of fantasy, planning and seeking that allows a brief escape from loneliness, boredom and rage. Conventional lovemaking and sexual expression is seen as not enough. Unusual sex becomes the only release where the addict rather than others are in control or "call the shots." Paradoxically, this illusion of control creates further feelings of being out of control, inadequate, depressed and lonely. Thus, beginning the cycle all over again to escape those feelings.

Sexual addiction is also seen as a means of relieving stress of feeling incompetent in adult interactions. Intimacy is born a desired and fear need that becomes confused and mistaken for sexual gratification. Often the sex addict cannot consistently combine sex and closeness with a desired part-

Carolyn F. Cordasco works at Central Prison in Raleigh, where she developed a sex offender program for the Division of Prisons. She is also in private practice for sex addictions at West Raleigh Psychological Services, 1600-A, Glenwood Ave., Raleigh.

ner. To avoid the confusion and feelings of emptiness the sexual addict will sacrifice family, friends, work and values to maintain this temporary and brief release of pain. As one client reported he began to "pleasurize the pain" in order to survive.

Sexual addiction has many cluster behaviors. An individual engaging in the following specific behaviors does not necessarily make that person a sex addict. The cyclic pattern of loss of control does.

Patterns of Powerlessness— Eleven Behavior Types

1. Fantasy Sex

Thinking/obsessing about sexual adventures, inordinate amounts of time spent losing self in fantasy about future and past; neglecting commitments because of fantasy life; dramatizing a particular role in your fantasy; creating sexualized or seductive atmospheres that you prefer to keep as fantasy and not act on; spending a large amount of time preparing for sexual episode.

2. Seductive Role Sex

Having many relationships at the same time or one after another; using seduction to gain power over others; thinking that sex will give power over another; flirtatious or seductive behaviors; hustling in single clubs, bars or health clubs; maintaining open calendars or failing to make commitments in order to be available for sex; bringing sex or sexualized humor into conversations; having to be sexual in order to feel good about self.

3. Anonymous Sex

Engaging in sex with anonymous partners; cruising beaches, parks, parking lots, rest rooms and baths; having one-night stands; participating in group sex.

4. Paying for Sex

Paying for sexually explicit phone calls; using an escort or phone service; paying someone for sexual activity; using the personal columns to find sex partners; patronizing saunas, massage parlors or rap lounges.

5. Trading Sex

Making sexually explicit videotapes and photographs; posing for sexually explicit videotapes and photographs; exposing yourself from stage or for hire; pimping others for sexual activities; receiving money for sexual activity; receiving drugs for sexual activity; administering drugs to force sexual activity.



6. Voyeuristic Sex

Using sexually explicit magazines or videotapes; having collections of pornography at home or work; patronizing adult bookstores and strip shows; using binoculars or telescopes to watch people; looking through windows of apartments and houses; sexualizing others in public places; sexualizing materials not sexually explicit.

7. Exhibitionist Sex

Exposing yourself in public places, such as parks, streets, school yards; exposing yourself from your home or car; being sexual or dressing and undressing in public; using choice of clothing to expose yourself; belonging to a nudist club to find sex partners.

8. Intrusive Sex

Making inappropriate sexual advances or gestures; touching or fondling others without permission; using sexually explicit stories, humor, or language at inappropriate times or places; using power position (e.g., as professional, clergy, or employer) to exploit or be sexual with another person; forcing sexual activity on any person, including your spouse or partner.

9. Pain Exchange

Receiving physical harm or pain during sexual activity to intensify sexual pleasure; causing physical harm or pain to partner to intensify sexual pleasure; willingly giving up power or acting out the victim role in sexual activity; using sexual aids to enhance sexual experience.

10. Object Sex

Masturbating with objects; cross-dressing to add to sexual pleasure; using fetishes as part of sexual rituals; engaging in sexual activity with animals.

11. Sex with Children

Sharing inappropriate sexual information with children; exposing children to adult sexual activities; forcing sexual activity on a child within or outside the family; engaging in sex with a consenting minor; watching child pornography.

Signs of Sexual Addiction

There are ten signs that indicate the presence of sexual addiction based on clinical experience and research by Dr. Ralph Earle and Dr. Gregory Crow.

1. A pattern of out-of-control behavior
2. Severe consequences due to sexual behavior
3. Inability to stop despite adverse consequences
4. Persistent pursuit of self-destructive or high-risk behavior
5. Ongoing desire or effort to limit sexual behavior
6. Sexual obsession and fantasy as a primary coping strategy
7. Increasing amounts of sexual experience because the current level of activity is no longer sufficient
8. Severe mood changes around sexual activity
9. Inordinate amounts of time spent in obtaining sex, being sexual or recovering from sexual experience
10. Neglect of important social, occupational or recreational activities because of sexual behavior

Personality Characteristics

Although sex addicts cross all boundaries of gender, age, race, religious affiliation and culture some common personality characteristics appear to emerge.

- Exhibit a constellation of preferred sexual behaviors, arranged in a definite ritualized order, which are acted out in an obsessional scenario;
- Experience periods of escalation, de-escalation, and acuity
- Continue to act out despite serious consequences, includ-

ing health risks, severe financial losses, injury, loss of family, and even death;

- Have delusional thought patterns, including rationalization, minimization, projection, reality distortion, and memory loss;
- Make futile repeated efforts to control the behavior even to the point of extreme hardship or self-mutilation;
- Experience little pleasure, often feeling despair even in the midst of sex;
- Spend most of the time in a state of obsession which subordinates life decisions, feelings, and self-awareness until reality comes crashing in;
- Feel shame and depression so severe that suicidal tendencies are one of the most common concurrent mental health issues;
- Experience withdrawal symptoms that parallel the depressive states of withdrawing cocaine addicts;
- Behave in a severely abusive and exploitive way, often violating his or her own values and common sense;
- Live a secret life surrounded by a web of lies and dishonesty which add to the accumulated shame;
- Go to extreme efforts to maintain appearances, including high achievements and excessive religiosity;
- Allow family relationships and friendships to become secondary in importance to obsessional and delusional patterns that are pathological and self-destructive; and
- Incur significant economic costs due to lost productivity, increased health care costs, and financial losses associated with maintaining the addiction.



In addition, a number of common preconditions have been identified which contribute to an individual's vulnerability to sex addiction. These risk factors include:

- A high probability of having been sexually abused as a child, although the addict may not recognize the abuse or see its connection to current behavior;
- A high probability of having been raised in a dysfunctional family in which self-esteem has been damaged, resulting in severe problems with intimacy (how to be close) and dependency (whom to trust);
- A history of emotional and physical abuse, intensifying a sense of unworthiness and fear of abandonment;
- Sex addiction or other types of addiction among parents, siblings, and other family members; and
- An extremely high probability of other addictions and compulsions, including chemical dependency, eating disorders, compulsive gambling, and compulsive spending.

Additionally, sex addicts have impaired thinking not only about themselves but about the motives of others. This impairment is a powerful reality blurring addictive process. In *Out of the Shadows* Dr. Patrick Carnes identifies four core beliefs that are essentially negative, self-talk that are central to their self-image and consequently influence their view of the world. Addicts often do not recognize this belief system until treatment and recovery, thus they continue to operate on a daily basis as if the following were irrefutable and unchangeable truths:

- I am basically a bad, unworthy person

- No one would love me as I am
- My needs are never going to be met if I have to depend on others
- Sex is my most important need

Sex addicts further report experiences in their childhood which influenced their low self-esteem, ever present anxiety and tendencies to turn to compulsive behaviors to escape. The most commonly cited by sex addicts are:

- One or more traumatic events during childhood—usually involving death, divorce, abuse, or victimization.
- Parents who were uncommunicative or frequently absent from the home.
- Families in which affection, encouragement and trust were virtually nonexistent while criticism, harsh punishment, and rigid—though unwritten—rules were ever present
- Prohibitive messages about sex, primarily from parents, but also found in religious teachings.

Is there help? The problem with addictive behavior is that it doesn't work. It is a basic human problem that involves a feeling of incompleteness and the assumption that we have to find something outside ourselves to make us complete. If an individual suspects that a problem with sexual addiction exists, a therapist who specializes in addictions should be contacted to see if treatment is needed. Sex addiction is treatable.

For more information contact the National Service Organization of Sex Addicts Anonymous, PO Box 3038, Minneapolis, MN 55403, (612) 339-0217. □

1993

October Drug Addiction

Breast of chicken



3-oz. cooked serving
of chicken breast

Best of pork



3-oz. cooked serving
of pork tenderloin

Today's Pork: Compare it to chicken for a healthy surprise

You may not have considered pork to be a healthy choice for your patients on fat-modified diets. But today's fresh pork compares surprisingly well to chicken in total fat, saturated fat, cholesterol, and calories.^{1,2*}

Compare pork with chicken^{1,2*}

	Calories	Total Fat	Saturated Fatty Acids	Cholesterol
Chicken Breast, skinless	140	3.0 g	0.9 g	72 mg
Pork Tenderloin, trimmed	139	4.1 g	1.4 g	67 mg
Pork Top Loin Roast (boneless), trimmed	165	6.1 g	2.2 g	66 mg
Center Loin Chop, trimmed	172	6.9 g	2.5 g	70 mg
Chicken Thigh, skinless	178	9.2 g	2.6 g	81 mg

*Table refers to 3-oz. cooked servings.

New study: Pork is now 31% leaner

Pork is leaner today because of significant changes made in breeding and feeding techniques.¹ According to new 1992 official USDA data, fresh pork sold today contains an average of 31% less fat after cooking and trimming than the same pork cuts reported in 1983.¹

Today's pork fits well within the dietary guidelines recommended by both the American Heart Association and the National Cholesterol Education Program. Here's some advice to help patients on low-fat diets enjoy the variety, extra taste, and versatility of pork:

- Choose the leanest cuts. Shop for cuts with "loin" in the name.
- Trim away any visible fat.
- Keep portions moderate (about 3 oz, cooked).
- Prepare by broiling or roasting, and avoid additional fat in preparation.

1. US Dept of Agriculture. *Composition of Foods: Pork Products*, 1992. Agricultural handbook 8-10.

2. US Dept of Agriculture. *Composition of Foods: Poultry Products*, 1979. Agricultural handbook 8-5.

Recommend

TODAY'S PORK

The Other White Meat®

An intensive one-day seminar that shows you how to apply strategies in your professional practice everyday to avoid malpractice litigation—techniques you can begin using *immediately!*

Although lawyers and malpractice insurers fail to emphasize the fact, you can avoid malpractice suits by applying certain techniques in your practice everyday. Some busy doctors are never sued: by using the same techniques they do, you too can avoid malpractice litigation.

THIS SEMINAR IS BY A PHYSICIAN, FOR PHYSICIANS AND OTHER HEALTH CARE PROVIDERS.

HOW TO AVOID MALPRACTICE LITIGATION

-A ONE DAY SEMINAR-

THIS WILL BE THE BEST INVESTMENT YOU HAVE EVER MADE TOWARD AVOIDING UNFOUNDED LAWSUITS!

While attending this practical, one-day seminar, you will learn how to:

- Identify early and handle the litigious or "suit-prone" patient appropriately
- Satisfy a disgruntled patient before he considers suing
- Hire office staff best suited to help you avoid malpractice litigation
- Plan the defense with your assigned attorney
- Teach your staff 100 desirable behaviors to better interact with patients and professional colleagues
- Decide if and when to hire your own lawyer
- Work with your lawyer to prepare the best defense
- Be your own best "expert witness"
- Teach proper telephone etiquette to your staff—an essential skill in avoiding malpractice litigation
- Help your lawyer choose an expert witness
- Safely dismiss a patient from your care
- Deal with the National Practitioner Data Bank
- Apply key behaviors in you and your office staff to avoid malpractice litigation
- Keep better records: Document! Document!
- Begin preparing for your defense *immediately* after being notified of a malpractice action
- Dress and act appropriately in court to defuse plaintiff's case and win the jury
- Protect your own interests in cases with multiple defendants
- Check the track record and credentials of the lawyer assigned to you by your malpractice carrier
- Avoid certain damaging statements while testifying in a deposition or courtroom
- Make your records work for you even before a malpractice action is ever instituted
- Maintain strict record confidentiality.

You can greatly lower your risk of litigation now by applying the same techniques other successful physicians have used to avoid lawsuits—we can help you *immediately* if you are already being sued!

Check one:

- ☐ **Raleigh, NC - October 20, 1993**
North Raleigh Hilton Conference Center
- ☐ **Charlotte, NC - October 21, 1993**
Sheraton Airport Plaza

- ☐ **Charleston, SC - October 27, 1993**
Ramada Inn Airport
- ☐ **Columbia, SC - October 28, 1993**
Columbia Marriott Hotel

— presented by —

MID ATLANTIC CONSULTING SERVICES

To enroll for this seminar:

1. Call toll-free 1-800-247-4686 and charge your entry fee of \$295 on your AmEx, VISA or MasterCard or
2. Mail your check with the bottom of this page and your letterhead to Mid Atlantic Consulting Services,
PO Box 7026, Lancaster, PA 17601

For more information:

1. Call our toll-free number and we will send you more details about our fact-filled seminar to help you avoid malpractice litigation.

Our Country's Mania for Medical Care Is Separating Us from Our Constitutional Heritage

James P. Weaver, M.D.

"Nothing in this title shall be construed to authorize any federal officer or employee to exercise any supervision or control over the practice of medicine or the manner in which medical services are provided, or over the selection, tenure, or compensation of any officer or employee of any institution, agency or person providing health service, or to exercise supervision or control over the administration or operation of any such institution, agency, or person."

If you have never read the above paragraph, I suggest you go back and read it again. It was written in 1965, as one of the provisions of the Medicare Law (Title Eighteen, "Health Insurance for the Aged"). This paragraph on "Prohibition Against Federal Interference" was intended to calm fears about government intervention into the delivery of medical care. You should reread it so that you are absolutely certain of the original political promises upon which we began our 1965 journey toward national health insurance.

Those promises against "federal interference" must have seemed appropriate and obtainable in 1965. We did not know then what direction our national journey would take. But now we are a nation of 260 million people, 12.6% of whom are over 65 years of age. Those over 85, the fastest growing segment of the population, have the largest per capita consumption of medical care. We are a different nation than we were in 1965, and we have failed to adjust our goals. We have based our pursuit of medical care for the elderly—and now medical care for all of our citizens—on the promises of the 1960s. If we continue to pursue the idea of universal access to medical care, I believe that we will necessarily violate many basic principles upon which this country was founded, and that the violation of those principles will leave poor quality, diminished medical care for future generations.

Physicians in Chains

Our profession is in prison. Physicians are imprisoned because we, like most inmates, have made serious errors in behavior that have put us there. Not only I, but all practicing

physicians in this country, have lost our previously guaranteed right to practice as professionals in a free economic and intellectual environment.

Our imprisonment was not unforeseen. Rep. Durward G. Hall (R-Mo.) saw it coming on April 7, 1965, when he told the House of Representatives:

"Mr. Speaker, the basis for quality medical care is the voluntary relationship between the doctor and patient. This would begin to disappear as the government supplants the individual as the purchaser and provider of health services. The result will inescapably be third-party intrusion in the practice of hospitalization and medicine. The physician's judgment would be open to question by others, not responsible for the patient's well-being. His diagnostic and therapeutic decisions would be subject to disapproval by those controlling the expenditure of tax money. As physicians and health facilities become more and more subject to intervention in their work by Government, a decline of professionalism will be certain."

I hear the echoes of this warning now that we physicians, like prisoners, have lost many of the basic rights enjoyed by other professionals in this country. We have lost our right to free speech and our right to enter into an unencumbered economic relationship with our patients to charge for our services.

Physicians Have Lost Their Right to Free Speech

Today's physicians have no right to discuss the business of medical practice. The Federal Trade Commission took that

From 4125 Ben Franklin Blvd., Suite 100, Durham 27704.

right away in the early 1970s by applying antitrust law to physicians. It is important to clarify that it is not simply the law itself (the ramifications and scope of which no one fully understands); even more it is the *fear* of the law, the very fact that these laws exist, that has paralyzed communication among physicians. Vague threats and harsh penalties can incapacitate physicians so that they do not know when or to whom they can speak. It is no coincidence that American military forces first destroyed the communication capabilities of the Iraqi army in 1991—a well-organized assault on communication capabilities can immobilize an army (and a profession) by creating fear.

I first sensed this fear at a North Carolina Medical Society meeting in 1988. Upon registering, I received a packet containing a sheet with the following statement:

“Develop a ‘sixth sense’ to flag when some discussion, note, minutes, or letter could be misconstrued or used to prove an antitrust violation. Whenever there is a specific discussion of money, particularly fees, competition, the ‘business’ side of medicine, be aware. Antitrust cases are based on ‘circumstantial evidence’ that is pieced together years later in an attempt to prove what people were intending at a particular time. Physicians and persons working on behalf of the Medical Society continue to be astonished that an innocent letter, minute, recording, or mere slip of paper with notes on it, can be used to try to prove an antitrust violation.”²

Threats and intimidation push physicians into silence, but third parties, protected by the McCarran-Ferguson Act can flaunt their protection from this body of law and use this to their advantage. No wonder we are now prisoners in the system.

I am afraid that our current infatuation with “managed competition” will only further extend our incapacity. Third parties, protected by the federal government, will continue to intimidate the medical profession into submission. I suspect that managed competition will become, with the blessing of the Health Care Financing Administration (HCFA), “government-managed monopoly.”

Physicians Have No Right to Charge for Their Labor

In another area, Medicare, we have lost our right to negotiate the value of our services in a free market. The Omnibus Reconciliation Act of 1989, and the recently imposed Resource Based Relative Value Scale (RBRVS), have removed the original idea that Medicare should be a “supplemental health insurance.” HCFA is now well on its way toward creating a system of involuntary servitude in which physicians will literally be placed at the beck and call of a part of society—a part that is actively protected from the direct economic consequences of its demands. I think back to the

words of James Madison, who wrote in 1788, in the 51st Federalist paper: “It is of great importance in a republic not only to guard the society against oppression of its rulers, but to guard one part of society against the injustice of the other part.”³

It is important to note that the RBRVS is based on the concept that the “value” of a doctor’s labor can be ranked and quantified without reference to market forces. This is not a new idea. It first gained prominence among 19th-century economists, most notably Karl Marx, who wrote, in 1906, the “value of any article is the amount of labor socially necessary, or the labor time necessary for its production. The value of one commodity is to the value of any other, as the labor time necessary for the production of the one is to that necessary for the production of the other.”⁴ Dr. William Hsiao, architect of the RBRVS, has given us an old wolf in new sheep’s clothing. He has dressed up Marx’s labor theory of value with some 20th-century formulas and statistics. But because the theory omits consideration of consumer demand and the human initiative created by a free market system, it was wrong in the 19th century, it failed miserably in the Communist world in the 20th century and, if it is tried again for 21st-century American medicine, the results will certainly be disastrous—not only for physicians, but very likely for society.

Commenting on the Marxist Value Theory of Labor, Robert Moffit of the Heritage Foundation said: “The notion of objective value, was an economic fiction; the economic value of anything was ultimately a matter of its utility, a utility subjectively determined by consumer demand.”⁵ Consumer demand, the value of services to the consumer, is missing in our newly mandated Marxist reimbursement scheme. And, although this is not discussed now in the clamor for access to medical care, its absence is the basic flaw that will lead to the ultimate demise of this system.

The centralized planning needed to implement the RBRVS is symbolic of the destructive violation of physicians’ civil rights. This planning, justified as necessary for the “general welfare,” allows Congress to create a cumbersome network of bureaucrats (the fourth branch of government) who now have the power to arbitrarily decide how much individual physicians should be reimbursed for their expenditure of labor on behalf of their patients. This frightening governmental assumption of power was clearly not intended when the paragraph on “Prohibition Against Federal Interference” was written into the 1965 Medicare Act. It is an alarming power, a power that I believe is beyond those intended when our founding fathers, in 1789, adopted the Constitution of the United States.

Others Will Face the Arbitrary Power of Government

Physicians are only the first victims in the quest for central control of medical care. Central planning will not stand still. Friedrich A. Hayek, an economist from the University of

Chicago, noting that central planning has a way of proliferating, warned: "We have already seen that the close interdependence of all economic phenomena makes it difficult to stop planning just where we wish and that, once the free working of the market is impeded beyond a certain degree, the planner will be forced to extend his controls until they become all-comprehensive."⁶

We can indeed see the first signs of such extension of power. The pressures used against the medical profession in the early 1980s are now being applied to the pharmaceutical industry. Accusations of "overpricing" and "inefficiency" are growing, and politicians will soon propose price controls for this industry, too. Finally, I believe the government's lust for power will extend to medical manufacturers who will fall victim to the government's increasing pressure for central control.

Central Control Repudiates Our Historic Traditions

The desire for secure and available medical care and the push to forcibly mandate it by removing the liberty of physicians, pharmaceutical industries, and medical manufacturers will come back to haunt us as a nation. Jefferson reminded us to "bear in mind this sacred principle, that though the will of the majority is in all cases to prevail, that will, to be rightful, must be reasonable; that the minority possess their equal rights, which equal laws must protect, and to violate which would be oppression."⁷ If the majority of citizens of this country want to control, by law, the labor of a minority of their fellow citizens, they should consider Friedrich Hayek's words:

"How sharp a break not only with the recent past but with the whole evolution of Western Civilization, the modern trend toward socialism means, becomes clear if we consider it not merely against the background of the 19th century but in a longer historical perspective. We are rapidly abandoning not the views merely of Cobden and Bright, of Adam Smith and Hume, or even of Locke and Milton, but one of the salient characteristics of Western Civilization as it has grown

from foundations laid by Christianity and the Greeks and Romans. Not merely 19th- and 18th-century liberalism, but the basic individualism inherited by us from Erasmus and Montaigne, from Cicero and Tacitus, Pericles and Thucydides, is progressively relinquished."⁸

The founding fathers, creating our Constitution out of that historic tradition, wrote their document based on their understanding of human behavior. They formulated a political ethos that produced a sense of nationality, but also encouraged individual ambition and industriousness. Our contemporary pursuit of "access to medical care" unfortunately carries the imminent threat of destroying our traditions. We will undoubtedly see the "loss of professionalism" that Rep. Hall worried about more than 25 years ago. Redirecting our legislative energies to reinstitute market forces into the medical care system, to lessen central control, and to encourage individuals to pay the real costs of medical care is our only realistic solution.

James Madison said: "But what is government itself but the greatest of all reflections on human nature? If men were angels, no government would be necessary. If angels were to govern men, neither external nor internal controls on government would be necessary. In framing a government which is to be administered by men over men, the great difficulty lies in this: you must first enable the government to control the governed; and in the next place oblige it to control itself."⁹ Adam Smith said: "It is the highest impertinence and presumption, therefore, in kings and ministers to pretend to watch over the economy of private people, and to restrain their expense. They are themselves always, and without any exception, the greatest spendthrifts in the society. Let them look well after their own expense, and they may safely trust private people with theirs."¹⁰

I can only conclude that central government regulation of medical care ignores the historic tradition of Western culture and of our own Constitution. We need to stop the progressive governmental indenturing of physicians. We need to nurture the individual initiative that our founding fathers tried to instill in each of our citizens. If we hope for real progress in our medical system, we need to ensure the liberties guaranteed to all of us, physicians included. □

References

- 1 The Congressional Record, Proceedings of the 89th Congress, April 7, 1965, p 7206.
- 2 North Carolina Medical Society. Anti-Trust Do's and Don'ts. Photocopy provided at North Carolina Medical Society Meeting, Pinehurst, NC, 1988.
- 3 Madison J. The Federalist Papers, No. 51, 1788.
- 4 Marx K. Capital: A Critique of Political Economy. New York: The Modern Library, 1906, p 46.
- 5 Moffit R. Back to the future: medicare's resurrection of the

- labor theory of value. Paper prepared for Cate Institute Conference on "Bitter Medicine: Insurance and the Regulation of Medical Care," April 30-May 1, p 15.
- 6 Hayek FA. The Road to Serfdom. Chicago: The University of Chicago Press, 1944, p 105.
- 7 Jefferson T. First Inaugural Address. Washington D.C., March 4, 1801.
- 8 Hayek FA. op cit p 13.
- 9 Madison J. The Federalist Papers, No. 51, 1788.
- 10 Smith A. Wealth of Nations, bk II, ch 3, 1776.

An Affordable Package of Medical Care for All Americans Is a Higher Goal than Absolute Freedom for Physicians

A Reply to Dr. Weaver

Stewart Rogers, M.D.

We the People of the United States, in order to form a more perfect Union, establish justice, ensure domestic tranquility, provide for the common defence, promote the general welfare, and secure the blessings of liberty to ourselves and our posterity, do ordain and establish this Constitution for the United States of America.

Our "Constitutional Heritage" is more diverse than Dr. Weaver suggests. It seeks to build a complex society with many needs and many goals. I will argue in this response that a basic level of universal healthcare is a higher goal than absolute freedom for physicians.

Absolute freedom is not compatible with society. Childhood, education, marriage, and property-holding, among many other societal roles and constructs, impose limitations on freedom that are often the reciprocal of advantages derived. Over time, society evolves a consensus about which resources should be managed collectively and develops the taxes and restraints necessary to meet those democratically-set goals. This is true for such social resources as education, public safety, transportation, and environmental preservation. The details (How much? What kind? Who pays?) are hotly and perennially debated, and comprise the agenda of our political process.

A moment's reflection will locate medical care in the field of socially-valued resources that require collective implementation. All of us share vulnerability to unexpected and devastating illness (much as we share the risk of flood or fire), and we place high value on prompt and sustained relief from the attendant suffering. To effect this relief, we use public resources to conduct medical research, build

hospitals, and train physicians and nurses. Physicians, trained and equipped at significant public expense, cannot reasonably expect to act without regard to public needs. Like it or not, doctors are a social utility and we have more in common with firemen, soldiers, and school teachers than with the farmers and trappers of our "constitutional heritage."

The same high social value that we place on medical care has led directly to the extraordinarily high incomes of doctors and to the fabulous technical resources of knowledge, apparatus, and pharmaceuticals that we use every day. As a direct result, medical care has become extremely expensive. Most Americans require little or no care for years at a time, but then unexpectedly incur medical costs that can exceed one's entire annual income. Clearly, such bizarre variation falls outside the bounds of the normal family budget process; it must be arranged for collectively, through insurance that pools the small but universal risk of huge but infrequent costs. If the poor and the elderly are to be insured, it must be done through the government as with Medicaid and Medicare. If, in turn, these public programs are to be fiscally responsible and limit the tax burden, they must drive hard bargains with their vendors (and that means doctors). The same conservative physicians who chafe and complain about Medicare's efforts to cut costs are often at the forefront of campaigns against wasteful "social programs." It seems to come down to whose ox is being gored.

Dr. Weaver is at once more radical and more honest than those of our colleagues who demand unfettered Medicare payments but reduced social spending. In the interest of freedom, buttressed by agrarian ideals from Madison, Milton, and Pericles (egad!), he would beg the cost-control issue by refusing to offer universal medical care. This is his right; we have elections every two years and there is an opportunity to express and register almost any opinion. But if his argument is against *any* government services that entail taxes and constraints unfamiliar to our Hellenic and Virginian fore-

From Internal Medicine Training Program, Moses H. Cone Memorial Hospital, Greensboro, NC 27401-1020.

bears, he should include public schools, traffic laws, national parks, and medical research. Perhaps he would. Personally, I can embrace a Western Civilization and a Constitutional Heritage that permits these humane endeavors to go forward even if it demands some modest reduction of my substance and my freedom.

Dr. Weaver is concerned, as many others have been, that collective financing (together with rate-setting and eventual rationing) of medical care will interfere with the "free market" and that our professional excellence will follow the Bolsheviks to the dustbin of history. It is therefore worth restating the central premise of a free market and examining how well this fits the actual market in which Americans seek to purchase medical care. In a free market, competent and informed consumers weigh options about quality and price and vendors compete for customers by improving quality and reducing price. What is the situation in the medical market? Sick and frightened people with little knowledge and less time generally do as they are told. Virtually all purchases are directed by their doctors who are usually paid a commission on tests and treatment rendered (Econ 101 calls this a "perverse incentive"). Most patients already have insurance and would be totally oblivious to price even if they could exercise any options.

By way of illustration, compare the selection of a treatment for myocardial infarction or cholecystitis with the purchase of a car or a college education. Even the relatively leisurely selection of a primary care physician or an insurance policy is based on relatively superficial criteria or, more often, on total ignorance. The best that can be said about "managed competition" is that it might simplify and standardize competing insurance/delivery systems so that consumers could at least shop for convenience and price. But even this jerry-rigged fragment of a market mechanism will come at the cost of multiple layers of bureaucracy required to prevent competing insurers from diverting healthcare dollars to corporate profits. Medical care is not a marketable commodity.

Should our society seek to insure all Americans? Dr. Weaver calls this a "mania," which seems rather harsh. Presumably, he desires medical care for his own family; would he regard this as evidence of a major affective disorder? Can we afford *unlimited* care for everyone without regard for age, behavior, or co-morbidity? Clearly, we cannot; we have limited means and competing priorities. Can we agree on a basic package of benefits and cover this for all of us as we do education, highways, and police protection? I believe that we can and we must for six reasons:

- 1 All other Western countries provide such coverage and at a fraction of our current spending.
- 2 We currently waste lives and dollars by forcing uninsured persons to delay routine and preventive care until expensive complications develop.
- 3 Without a portable right to basic health insurance, workers with chronic conditions may be frozen in jobs that do not satisfy their growing abilities and ambitions, simply to

maintain their existing insurance coverage.

- 4 At present, we shift the expensive hospital costs of uninsured patients onto the premiums of insured patients, thus forcing some employers to bear a disproportionate share of the total healthcare system.
- 5 Insured employees receive medical care as a tax-free benefit; out-of-pocket spending by the uninsured is made with after-tax dollars.
- 6 Uninsured workers pay taxes that contribute to medical research and physician training. These benefits accrue to the insured users of healthcare while the uninsured are shut out.

I submit that these clinical, economic, and ethical failings of our current healthcare system are what is "separating us from our Constitutional Heritage." I submit further that the true legacy of the great political and humanist figures cited by Dr. Weaver speaks more to gratitude for our training and tools, to generosity toward our neighbors and to professional pride in the unique gifts of life, liberty from disease, and the pursuit of health and happiness. In our best moments, these are what we are granted the power to give. □



"I'm practicing medicine the way I think it should be practiced, sans the paperwork and administrative overload."

Owen Brodie, MD, joined CompHealth's locum tenens medical staff in 1989, after 21 years in private practice. Since

then he's worked in temporary assignments in state facilities, filled in for attending physicians, covered for private practitioners across the country.

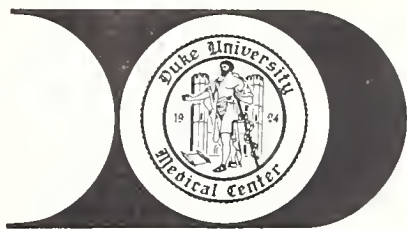
A pilot. A historian. A board-certified psychiatrist. Southern to a fault. Owen Brodie knows...

It's a great way to
practice medicine

CompHealth
L O C U M T E N E N S

1-800-453-3030

Salt Lake City ■ Atlanta ■ Grand Rapids, Mich.



Duke University Medical Center Pediatric HIV Conference

**Tuesday, September 14, 1993,
Sheraton University Center, Durham, North Carolina**

A full day's program for nurses, social workers, physicians, community workers, public health professionals, and all others dealing with infants, children, and mothers with HIV-infection/AIDS.

A multi-disciplinary program covering the current state of pediatric HIV, diagnosis and management, child protection issues, public health management, anti-retroviral therapy, nursing and psychosocial aspects, opportunistic infections, substance abuse, inter-disciplinary management of terminal illness, and the quality of life.

\$35 fee covers registration, breaks, luncheon, social hour, and CME credit.

For further information, contact Wake AHEC, Wake Medical Center, P.O. Box 14465, Raleigh, NC 27620-4465. Attention: Sonja Coble, or phone (919) 250-8547. Registration is limited.

Instructions for Authors

Manuscript Preparation

Authors should prepare papers according to the "Uniform Requirements for Manuscripts Submitted to Biomedical Journals" (N Eng J Med 1991;324:424-8) with these exceptions: 1) no abstract is needed; 2) no running title is needed; and 3) measurements must be reported in metric units; use of the International System of Units (SI) is optional.

Text (including Letters to the Editor) should be typed with one-inch margins and double-spaced. Title page should include address, and phone and fax numbers of the corresponding author. Submit two copies or a cover letter and a 3 1/2- or 5 1/4-inch computer disc with text written in MS DOS compatible format (WordPerfect, Microsoft Word, Displaywrite, or ASCII).

Submit illustrations, in duplicate, in the form of color 35mm slides or glossy photographs, or as black-and-white glossy photographs. Label them with author's name, note their position in the text, and indicate image orientation, if necessary. *Do not write on the backs of prints.* Type legends separately. Tables should be typed, double-spaced, one to a page. Tables must have titles and consecutive Arabic numbers.

Minimize references (no more than 15, preferably 10 or fewer). The "Uniform Requirements" cited above contain the format for references. Authors are responsible for the accuracy and pertinence of all citations. Avoid abbreviations entirely if possible, or keep them to a minimum. When used, completely define abbreviations at the first usage in the text.

Manuscript Editing

A medically qualified editor reads all manuscripts, and most are also reviewed by members of the North Carolina Medical Society. Manuscripts are received with the understanding that they are not under consideration for publication elsewhere. Decisions to publish or not are made by the editors, advised by peer reviewers.

We encourage a relatively informal writing style since we believe this improves communication. Imagine yourself talking with your unseen audience—as long as this doesn't lead you to scientific or linguistic inaccuracy. Be brief, clear, simple, and precise.

We edit accepted manuscripts for clarity, style, and conciseness. Except for letters, authors receive a copy of the edited manuscript for approval before publication.

Authors retain copyright to articles published in the *North Carolina Medical Journal*, but the North Carolina Medical Society copyrights the contents of each issue. Requests for permission to reprint all or part of an article must be submitted in writing to the address below and negotiated with the author and editor jointly. Reprinted material must carry a credit line identifying that it appeared in the *North Carolina Medical Journal*. Address manuscripts and correspondence to:

**Editor, North Carolina Medical Journal
Box 3910, DUMC
Durham, NC 27710
Telephone 919/286-6410 Fax 919/286-9219**

The Return of the Generalist Physician

Initiatives of the University of North Carolina School of Medicine

Peter Curtis, M.D., and Donald Pathman, M.D., M.P.H.

North Carolinians face two primary impediments to health care access. The first is a financial barrier due to the high costs of medical care and inadequate health insurance coverage. In North Carolina, 1,200,000 people have *no* health insurance coverage and 725,000 have coverage inadequate to meet their basic needs. Every day about 330 North Carolinians lose their health coverage because they cannot afford its increased cost.¹ Except for higher coverage provided pregnant women and children, Medicaid covers only 48% of people below the federal poverty line, many of whom face high out-of-pocket costs.² Furthermore, Medicare and Medicaid provide low reimbursement rates that do not cover the costs of a patient visit. As a result, many primary care providers have reduced their Medicaid patient loads, making medical care access more difficult.³

The second impediment to health care access is a relative shortage of generalist physicians, particularly in rural areas of the state. The shortage of generalists in North Carolina, the implications of this shortage, and the response to it by the School of Medicine at the University of North Carolina are the foci of this article.

Dr. Curtis is Director of the Institute of the Generalist Physician, and Dr. Pathman is Assistant Professor, both in the Department of Family Medicine, University of North Carolina School of Medicine, Chapel Hill 27514.

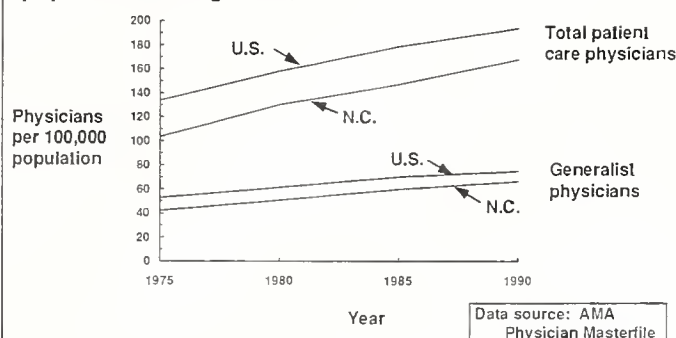
The Universal Shortage of Generalist Physicians

There is a generally adequate, if not excessive, total number of physicians in the U.S. But the increasing physician-to-population ratio of the past few decades has done little to improve access to basic medical care services. In 1975 there were 134 allopathic physicians providing patient care per 100,000 population; by 1990 this number had increased 45% to 194/100,000 (Figure 1).⁴ During this same period, generalist physician-to-population ratios increased 38% from 52.9/100,000 to 74.8/100,000.

In North Carolina, the ratios of all practicing physicians and of generalist physicians to population have followed those of the nation as a whole, but always one step behind (Figure 1). In 1990, we had 167 physicians per 100,000 population of whom 67/100,000 (40%) were generalists. It would seem from these numbers that both the nation as a whole and North Carolinians should have

good access to physicians but, despite an increased number of total physicians, the percentage practicing in primary care specialties has fallen dramatically. In 1931, 87% of U.S. physicians were generalists; by 1960 this number had fallen to 53%;⁵ in 1990, only 33.5% were generalists (13.9% internists, 12.9% family physicians, 6.7% pediatricians). Interest in generalist careers by new graduates of U.S. medical schools fell from 36% in 1982 to 14.6% in 1992.⁶ Based on trends from previous years, we can expect that less than 20% of future training program graduates will practice primary care.⁷ The Association of American Medical Colleges' graduating student survey confirms this national trend at the University of North Carolina, where the percentage of graduates intending to practice as generalists declined from 30% in 1989 to 18% in 1991.

Figure 1.
U.S. and North Carolina physician / 100,000 population ratio growth, 1975-1990



“...between 1983 and 1988, 37 North Carolina counties experienced a net loss of family physicians, and, as of 1992, there were openings for 350 primary care physicians in 135 towns...”

Numbers alone do not tell the whole story. While there has been a steady overall increase in both total and generalist physician-to-population ratios in North Carolina, individual communities and counties have had varying growth. In fact, between 1983 and 1988, 37 North Carolina counties experienced a net loss of family physicians,² and, as of 1992, there were openings for 350 primary care physicians in 135 towns in the state. The Graduate Medical Education National Advisory Committee (GMENAC) recommends that primary care physicians be responsible for no more 2,900 patients. Given current rates of retirement from practice, North Carolina will need between 476 and 542 family physicians in the immediate future.⁸ The needs for general internists and pediatricians have not been as well delineated, but are likely to be similar. Nor can increasing numbers of non-physician primary care professionals such as nurse practitioners and physician assistants compensate. The number of physician assistants, for example, grew by 112% over the past 10 years, but there are still shortages and maldistributions (and only 59% of physician assistants practice “mostly primary care”). The end result is that, as of January, 1992, North Carolina had 44 federally designated primary care health manpower shortage areas, affecting 29 entire counties and parts of 15 others.² If past trends continue, the future for access to generalist physicians in North Carolina will be bleak.

Nevertheless, the national residency match figures for family practice give some room for hope. In 1992, 67.5% of family practice residency positions were filled, but the rate rose to 77.3% in 1993, and the percentage of UNC senior medical students entering Family Medicine residencies rose from 13.6% to 18.2%. Whether 1993 figures reflect a true turnaround in student attitudes and career choices or simply a chance “blip” in an otherwise downward trend remains to be seen. In 1993, pediatrics filled 87% of available residency positions, and internal medicine, 64%—the latter figure a reduction from previous years, partly due to a relative increase in the number of residency positions.

Why Be Concerned About Generalist Physician Numbers?

The U.S. health care system is one of a few in the world in which care is dominated by specialists. Germany, Belgium and Canada have well regarded health care systems in which generalists constitute approximately 50% of the physician workforce⁵ (a figure proposed as an estimate of generalist workforce needs in the U.S.¹⁰). In the United Kingdom, which spends about one-third as much per capita for health care as the U.S., nearly three out of four physicians are generalists. The “upside down,” specialist-dominated structure of the U.S. health care system contributes to the expense of our medical care system. We spend over 13% of our gross national product on health care, while no other country in the world spends more than 9%, and most western countries spend far less.⁵ And despite the expenditures, major indices of health status do not place the U.S. among world leaders. In 1987, the U.S. ranked in the bottom half of 24 major countries in terms of life expectancy at birth.⁵

The call for more generalist physicians is based on an appreciation that generalists provide less expensive and yet appropriate care for most medical problems, and that they are willing to

settle in communities where physicians are needed. Health care costs are strongly linked to physician supply since physicians are the gateway to resources. Some 70-90% of health expenditures result directly from physicians’ orders.¹¹ An oversupply of subspecialist physicians, who tend to use expensive technologies of marginal benefit, accelerates costs. Subspecialists with little or no primary care training generate more costly services while providing more fragmented and needlessly duplicated care (more tests, medications and hospitalizations).¹²⁻¹⁵ Nevertheless, specialist physicians do provide principal or primary care to about 20% of the population,¹⁶ and some want to continue the role of primary care provider as they observe health care financing swing away from specialty practice.¹⁷ Of course, the claim of primary care by specialists may just reflect the general trend toward specialization in society and the public desire for care from specialists.¹⁸

The argument that primary care competency is not relevant to providing primary care medical services is contradicted by research evidence and by experience in other industrialized countries.^{19,20} Generalists practice a style of medicine appropriate for most individual and family medical needs and concerns. Specialists tend to use a “seriously diseased until proven otherwise” or “rule-out” approach that sees “zebras” lurking behind most symptoms and leads to an over-use of laboratory tests, x-rays, and referrals to consultants. The generalist’s “rule-in” philosophy is more appropriate for the primary care needs of patients who first present their health concerns to an outpatient physician. Generalists appreciate the self-limiting nature of most patient concerns, are more willing to make an initial clinical diagnosis and to allow time either to cure the problem or point to the need for further investigation.

The health care microcosm of the Health Maintenance Organization (HMO) demonstrates that we can attain an “ideal” generalist/specialist mix in the U.S. Health Maintenance Organizations value generalists because they

manage most medical problems in a cost-effective manner and provide further savings with their gatekeeping abilities. The typical HMO has 50% primary care physicians.^{5,21-23}

Non-primary care specialists concentrate in metropolitan and larger non-metropolitan counties both in North Carolina and nationwide (Figure 2). In part, this is desirable because smaller communities without sophisticated hospital resources cannot support a full range of specialists. Unfortunately, this leaves a shortage of physicians in smaller communities. The location patterns of generalists partially compensate for the maldistribution of specialists. Family physicians, in particular, demonstrate a remarkably even distribution across counties of all sizes.

National Response of Medical Schools to the Generalist Shortage

The shortage of generalists can be explained by four factors: (1) the selection into medical schools of students predominantly interested in sub-specialty careers; (2) an educational environment detrimental to generalist training; (3) the complexity and bureaucracy of primary care practice; and (4) financial disincentives. Federal legislation to counter the trend to specialization was enacted after the Millis report in 1966, but the strategies were ineffective and poorly organized. Over the last 15 years, the mean income of specialists has increased 2.5 times more than that of primary care practitioners. The government has introduced a relative value fee schedule, but the benefit to primary care has been attenuated and the schedule has yet to be adopted by the private sector.¹⁰ The financial differentials between specialists and generalists remain wide.

The influential report of the Third Council on Graduate Medical Education (COGME) issued in October, 1992, contained a detailed analysis of the factors causing the U.S. specialty mix maldistribution.⁵ It cites financial disincentives, a negative image of generalists among physicians, and a rela-

tively unresponsive medical education system. Colwill feels that medical students are primarily recruited into various specialties by forces within the "educational marketplace" (that is, factors within medical schools) because the practice marketplace is too distant and unreal to influence students.⁷ Both COGME and Colwill say that the training of medical students in tertiary care hospitals, under the tutelage of specialist physicians, in teaching hospitals where financial incentives favor specialist residency training, is largely responsible for the non-generalist specialty choices made by graduates.^{5,7}

COGME proposed that we could achieve a better specialty mix of medical school graduates if we met the following goals:

- Modify the health care system to enable 50% of physicians to practice in generalist disciplines.
- Assure that 50% of all graduating residents complete three years training in Family Medicine, General Internal Medicine and General Pediatrics, and enter generalist practice.
- Improve physician distribution to reduce medical care shortage areas.
- Double the number of minority students entering medical school.

COGME members believed that it would take between 17 and 27 years to attain these goals! Strategies proposed for attaining them include:

- Develop national and state physician workforce commissions to determine local and national needs
- Develop academic consortia between medical schools and health care agencies

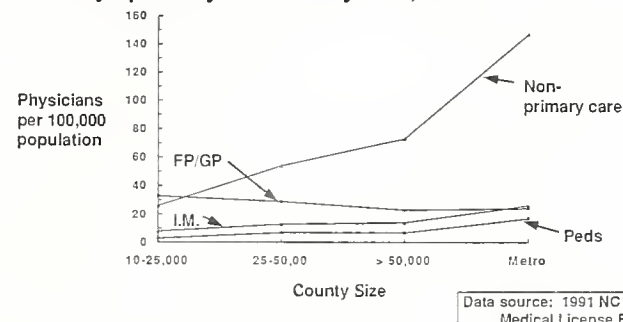
to allocate residency positions based on state and regional needs

- Control student enrollment
- Provide undergraduate financial incentives to recruit minority and generalist oriented students
- Use Medicare and other payers to provide financial incentives for training more generalists and fewer subspecialists
- Increase incentives to practice in rural and inner-city areas by reforming reimbursement and malpractice legislation.

Schroeder reviewed a range of options available to the nation for developing an appropriate medical workforce (Table 1).^{24,25} These options have varying costs and benefits. For instance, training subspecialists to provide primary care might improve medical services, but would not address physician shortages in rural and underserved areas; modifying the financing of medical education and limiting residency positions by specialty would require sweeping reforms.

A virtual explosion of articles, reports, and recommendations from influential individuals and national and institutional task forces has renewed the emphasis on generalist training.^{5,10,26,27,28} In addition, several large foundations have worked intensively to reform the structure and attitudes of medical schools. The Pew Charitable Trust promoted a population-based perspective for medical school faculty through its Health of the Public Program, and the report of the Pew Health Professions commission on medical

Figure 2.
North Carolina physician / 100,000 population ratios by specialty and county size, 1991



education for the future identified competencies for all health workers for the year 2005²⁸ (Table 2). More recently, the Generalist Initiative of the Robert Wood Johnson Foundation has funded major commitments to the education of generalist physicians at a number of medical schools, including East Carolina University. The medical schools at Bowman Gray and the University of North Carolina (UNC-CH) are proceeding with the development of their own generalist programs with support from the Kate B. Reynolds Charitable Trust.

The UNC-CH Response: the Institute for the Generalist Physician

The Association of American Medical Colleges (AAMC) Task Force on the Generalist Physician proposed 10 strategies by which medical schools could meet physician workforce goals.²⁹ These include:

- Specify a commitment to correct the medical workforce imbalance
- Establish administrative units for generalist training

- Foster research opportunities in generalist fields
- Require generalist experiences for students in the curriculum
- Appoint generalist faculty to key administrative and planning bodies
- Adjust admission criteria to recruit generalist oriented students
- Establish financial incentives for students to choose generalist careers.

The School of Medicine at the University of North Carolina (UNC-CH) supports the goal of a 50% generalist physician workforce and is committed to contributing to this goal in North Carolina. With the cooperation and support of physicians in community practice and other agencies, the Medical School successfully implemented a third year family medicine clerkship and an ambulatory care selective in 1992. In the same year, the stimulus of the Robert Wood Johnson Foundation Generalist Initiative and strong statewide concerns about workforce shortages led UNC-CH to recognize the need for an institutional focus on generalist training.^{2,24} The result was an organizational program,

responsible to the Dean, known as the Institute for the Generalist Physician.

This nascent institute is directed by three senior generalist faculty members, one each from the Department of Family Medicine, General Internal Medicine and General Pediatrics. Guidance is provided by an executive committee consisting of the three Directors, the Dean for Academic Affairs, and the Director of the North Carolina Area Health Education Centers program. The Institute will develop plans and strategies both inside and outside the medical school to enhance the education and graduation of generalist physicians. The Institute's initial efforts have resulted in a mission statement (Table 3) and the development of a planning process.

How has the Institute proceeded towards its goals? We have taken two parallel approaches. The first involved the creation of a 50-member planning task force to address short- and long-term goals in the special areas of Admissions to Medical School, Medical School Curriculum, Residency Training, Community Practice, and Medical School Organization. In addition, an advisory board representing various agencies and medical organizations in the state will provide guidance to the Institute.

Table 1
Options for Developing an Appropriate Mix of Physicians

Options	Key Factors
• Maintain status quo - market forces	Insurance industry Personal choice Medical competition
• Enhance changes in medical schools	Modify curriculum Increase generalist residency slots Retrain some specialists in primary care
• Replace "lost" generalists with other generalist providers	Non-physician practitioners Increase student numbers in osteopathic schools
• Accept decline of the generalist and introduce primary care tracks in specialty residency programs	
• Rely on public sector to create legislative pressure and financial incentives to change medical education	

Adapted from Schroeder, 1993²⁵

Table 2
Future Competencies of All Professional Health Care Workers

- Care for the community's health
- Provide contemporary clinical care
- Participate in the emerging Primary Care System and respond to increasing accountability
- Ensure cost effective care
- Practice prevention and promote healthy lifestyles
- Involve patients and families in the decisions about their care
- Manage information and maintain professional competence and learning

Adapted from: Health Professionals' Education for the Future: Schools in Service to the Nation²⁸

Table 3 Mission Statement for the Institute for the Generalist Physician

The Primary Mission of the Institute for the Generalist Physician

To develop interest in general and primary care medicine among undergraduate and medical students. It will encourage medical students to enter generalist and primary care careers and will support the education of increasing numbers of generalist physicians in residency training. It will also promote the retention of generalist physicians in practice, with an emphasis on the underserved communities of North Carolina.

Major Goals of the Institute for the Generalist Physician

Medical School

1. Support the development and implementation of a medical school curriculum that enhances the development of the generalist primary care physician using institutional and AHEC resources.
2. Support and facilitate the recruitment of students interested in generalist primary care to become medical students in the UNC School of Medicine using institutional and AHEC resources.
3. Foster a more positive attitude towards and awareness of generalist medical practice throughout the Medical School.
4. Facilitate linkages between generalists and other health professionals with a major role in primary care (Nursing, School of Public Health).

Residency Training

5. Facilitate increased collaboration in educational programs between the generalist residency programs at UNC Hospitals and in the AHEC system

In Practice

6. Facilitate educational linkages between community based clinicians, the School of Medicine and affiliated AHEC centers.

Research

7. Support the development and awareness of Primary Care Research in the UNC and AHEC system.

The second approach, more immediate and pragmatic, is to develop specific strategies for facilitating community-based educational experiences within the medical school curriculum. Significant changes in the medical school curriculum are being proposed and the Institute of the Generalist Physician will play an important role in helping decentralize medical education, in establishing links to "teaching" clinicians in community practice and in enhancing collaboration with primary care organizations in the state. To make these changes successful we will need significant input and participation from practicing clinicians and community health

YOCON® YOHIMBINE HCl

Description: Yohimbine is a 3a-15a-20B-17a-hydroxy Yohimbine-16a-carboxylic acid methyl ester. The alkaloid is found in Rubiaceae and related trees. Also in Rauwolfia Serpentina (L) Benth. Yohimbine is an indolalkylamine alkaloid with chemical similarity to reserpine. It is a crystalline powder, odorless. Each compressed tablet contains (1/12 gr.) 5.4 mg of Yohimbine Hydrochloride.

Action: Yohimbine blocks presynaptic alpha-2 adrenergic receptors. Its action on peripheral blood vessels resembles that of reserpine, though it is weaker and of short duration. Yohimbine's peripheral autonomic nervous system effect is to increase parasympathetic (cholinergic) and decrease sympathetic (adrenergic) activity. It is to be noted that in male sexual performance, erection is linked to cholinergic activity and to alpha-2 adrenergic blockade which may theoretically result in increased penile inflow, decreased penile outflow or both.

Yohimbine exerts a stimulating action on the mood and may increase anxiety. Such actions have not been adequately studied or related to dosage although they appear to require high doses of the drug. Yohimbine has a mild anti-diuretic action, probably via stimulation of hypothalamic centers and release of posterior pituitary hormone.

Reportedly, Yohimbine exerts no significant influence on cardiac stimulation and other effects mediated by B-adrenergic receptors, its effect on blood pressure, if any, would be to lower it; however no adequate studies are at hand to quantitate this effect in terms of Yohimbine dosage.

Indications: Yocon® is indicated as a sympatholytic and mydriatic. It may have activity as an aphrodisiac.

Contraindications: Renal diseases, and patient's sensitive to the drug. In view of the limited and inadequate information at hand, no precise tabulation can be offered of additional contraindications.

Warning: Generally, this drug is not proposed for use in females and certainly must not be used during pregnancy. Neither is this drug proposed for use in pediatric, geriatric or cardio-renal patients with gastric or duodenal ulcer history. Nor should it be used in conjunction with mood-modifying drugs such as antidepressants, or in psychiatric patients in general.

Adverse Reactions: Yohimbine readily penetrates the (CNS) and produces a complex pattern of responses in lower doses than required to produce peripheral a-adrenergic blockade. These include, anti-diuresis, a general picture of central excitation including elevation of blood pressure and heart rate, increased motor activity, irritability and tremor. Sweating, nausea and vomiting are common after parenteral administration of the drug.^{1,2} Also dizziness, headache, skin flushing reported when used orally.^{1,3}

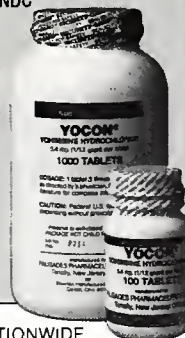
Dosage and Administration: Experimental dosage reported in treatment of erectile impotence.^{1,3,4} 1 tablet (5.4 mg) 3 times a day, to adult males taken orally. Occasional side effects reported with this dosage are nausea, dizziness or nervousness. In the event of side effects dosage to be reduced to 1/2 tablet 3 times a day, followed by gradual increases to 1 tablet 3 times a day. Reported therapy not more than 10 weeks.³

How Supplied: Oral tablets of Yocon® 1/12 gr. 5.4 mg in bottles of 100's NDC 53159-001-01 and 1000's NDC 53159-001-10.

References:

1. A. Morales et al., New England Journal of Medicine: 1221, November 12, 1981.
2. Goodman, Gilman — The Pharmacological basis of Therapeutics 6th ed., p. 176-188. McMillan December Rev. 1/85.
3. Weekly Urological Clinical letter, 27:2, July 4, 1983.
4. A. Morales et al., The Journal of Urology 128: 45-47, 1982.

Rev. 1/85



AVAILABLE AT PHARMACIES NATIONWIDE

**PALISADES
PHARMACEUTICALS, INC.**

64 North Summit Street
Tenafly, New Jersey 07670
(201) 569-8502
1-800-237-9083

groups, although the mechanism for rewarding contributions by community health professionals is not yet clear. In addition, we must see whether the faculty of the Medical School fulfills its expressed commitment to the education of generalists. Success will require a real change of orientation, mind set and territoriality by the faculty which has previously aimed at preparing skilled and competent physicians who then "just happened to end up" in subspecialty care and biomedical re-

search careers. Ultimately, the success of our enterprise will be measured not by how programs are implemented, but by the career choices of future UNC-CH medical students and residency graduates.

For the time being, the developers of generalist education will swim upstream against the currents of an unfavorable practice environment. However, the groundswell of health care needs of our state, the commitment by legislative and medical education in-

stitutions and the spirit of innovation and reform should inject renewed energy and support for the return of the generalist. □

Editor's note: Readers interested in the vexing problem of how to provide adequate primary care to our population, especially that in rural areas, will be interested in next month's special issue of the Journal on Rural Health, edited by Dr. Ricky Langley.

References

- 1 Crisis in Health Care Demands the Spotlight. News and Observer, Raleigh, NC, January 24, 1993.
- 2 Who Will Take Care of Our People? Report of the North Carolina Academy of Family Physicians Health Care Manpower Task Force, March, 1991.
- 3 Hendrickson RM. Hanging on by Your Fingernails. Florida Family Physician. February 1993; 53-55.
- 4 American Medical Association, 515 N. State Street, Chicago, Illinois 60610.
- 5 Council on Graduate Medical Education. Third Report. Improving Access to Health Care through Physician Workforce Reform. Directions for the 21st Century. US Dept of Health and Human Services. PHS. Health Resources and Services Administration, October 1992.
- 6 Colwill JM. Primary care practitioners: if the demand increases, how will educational institutions respond? National Primary Care Conference. U.S. Dept of Health and Human Services. PHS. Health Resources and Services Administration. March 1992. Washington DC. pp. 95-111.
- 7 Colwill JM. Where have all the primary care applicants gone? N Engl J Med 1992;326:387-393.
- 8 Newsbrief. NC Academy of Family Physicians. 1993. April.
- 9 Von Seggen, W., Hinds, A. Physician Assistants in North Carolina, 1992. NC Med J 1993;54:276-80.
- 10 Petersdorf, RG. The Doctor Is In. Acad Med 1993;68:113-7.
- 11 Eisenberg JM. Doctor's Decisions and the Cost of Medical Care. Ann Arbor, MI: Health Administration Perspectives. 1986.
- 12 Dietrich, A.J., et al. Do primary physicians actually manage their patients' fee-for-service care? JAMA 1988;259:3145-49.
- 13 Perkoff, G.T. An effect of organization of medical care upon health manpower distribution. Med Care 1978;16:628-40.
- 14 Franks, P, et al. Gatekeeping revisited: protecting patients from overtreatment. N Engl J Med 1992;327:424-29.
- 15 Rosenblatt, RA. Specialists or generalist: on whom should we base the American health care system? JAMA 1992;267:1665-66.
- 16 Aiken LH, Lewis CE, Craig J, et al. The contribution of specialists to the delivery of primary care. N Engl J Med 1979;300:1363-70.
- 17 Budetti, PB. Achieving a Uniform Federal Primary Care Policy. Opportunities Presented by National Health Reform. JAMA 1993;269:498-501.
- 18 Berenson RA. How the Preponderance of Subspecialists Affect the Cost, Quality and Accessibility of Care. National Primary Care Conference. U.S. Dept of Health and Human Services. PHS. Health Resources and Services Administration. March 1992. Washington DC. pp.23-46.
- 19 Starfield B. Primary Care and Health. A Cross-National Comparison. JAMA 1991;266:2268-71.
- 20 Beeson, PB. Too many specialists, too few generalists. Pharos. Spring, 1991;2-6.
- 21 Steinwachs, DM, et al. A comparison of the requirements for primary care physicians in HMO's with projections made by the GMENAC. N Engl J Med 1986;314:217-22.
- 22 Greenfield, S, et al. Variations in Resource Utilization Among Medical Specialists and Systems of Care: Results From The Medical Outcomes Study JAMA 1992;267:1624-30.
- 23 Mullan F, Rivo ML, Politzer RM. Doctors, Dollars and Determination: Making Physician Work Force Policy. Health Affairs. 1993;s139-51.
- 24 Schroeder, SA. Physician supply and the U.S. medical marketplace. Health Affairs, Spring 1992 pp.235-43.
- 25 Schroeder, SA. Training an Appropriate Mix of Physicians to Meet the Nation's Needs. Acad Med 1993;68:118-22.
- 26 AAMC Policy on the Generalist Physician. Acad Med 1993;68:1-5.
- 27 Editorial. Is the American System Preparing the Right Kind of Physicians? Acad Med 1993;68:48.
- 28 Health Professions Education for the Future: Schools in Service to the Nation. Report of the Pew Health Professions Commission February 1993.
- 29 Task Force on the Generalist Physician. Executive Summary. October 1992. Association of American Medical Colleges, Washington DC.

A PRIVATE OCEANFRONT RETREAT TO CALL YOUR OWN...DEWEES ISLAND MINUTES FROM CHARLESTON, SC



Located only a nine-minute ferry ride north of the Isle of Palms, Dewees Island offers oceanfront and oceanview homesites. Here you'll find one of South Carolina's most breathtaking and expansive beaches, with a development plan dedicated to preserving the island's natural environment.

A convenient property owner's ferry service links the island to a private marina on the Isle of Palms, placing it only minutes from downtown Charleston and the Charleston International Airport.

Environmental covenants limit the number of homes that may be built to 150, thus ensuring the 1,206-acre island will forever be uncrowded...and natural.

Come explore one of the South's last oceanfront islands available for development...

you'll find unspoiled beauty at a surprisingly affordable price.

Oceanview homesites from \$150,000, Oceanfront homesites from \$315,000.

For more information, call 1-800-444-7352 or 886-8783.

PAT ROSS, BIC

DEWEES ISLAND



A PRIVATE, OCEANFRONT
ISLAND RETREAT
DEDICATED TO
ENVIRONMENTAL PRESERVATION

Obtain the property report required by federal law and read it before signing anything. No federal agency has judged the merits or value, if any, of this property.

My Time as a Minority Student at Meharry Medical College

Lisa Horton Lowe, M.D.

Despite a 3.66 grade point average with a major in biology and a minor in chemistry, despite participation in a long list of campus organizations, despite many honors and awards, medical schools were not interested in my application because my medical college admission test (MCAT) scores were low. Because I could afford to take the MCAT only once, I waited until the last test session of the academic year. I then had to attend and complete the test when I was very ill. Every medical school I applied to suggested that I repeat the MCAT and reapply the following year. Meharry did not. Based on the rest of my application, they overlooked my MCATs, gave me a chance, and I finished at the top of my class.

When I was accepted to Meharry Medical College in Nashville, Tennessee, I did not realize how much my experiences there would influence my life. At Meharry more than three-fourths of the students are black. Most of the remaining students are white. As one of those white students, I gained insight on a small scale about what it is like to be a member of a minority group. I left Meharry educated both medically and socially, and for this reason I was as grateful to have attended Meharry as I was to be leaving it.

"I gained insight on a small scale about what it is like to be a member of a minority group."

service to our nation that few other institutions address.

The somewhat unusual focus of medical education at Meharry was encouraged through programs serving various needy communities. I had the privilege of participating in some of these as part of my training. For example, I worked with children and adolescents in a public housing clinic in a program called "I Have a Future."

Its purpose was to provide positive

role models, sex education, basic medical care, and encouragement to young people living in adverse circumstances. While attending Meharry, I served needy groups in other settings — a women's prison, a sexually transmitted disease clinic, a state mental health institution, a clinic for the homeless. The publicly funded clinic for the homeless was interesting because of its comprehensive nature; it provided health care, free prescription medications (made available through private donations), and referrals for job training, housing, and treatment of drug and alcohol addiction. Being exposed to these populations increased my awareness not only of their existence but also of the problems they face. Most of us live and work far removed from these communities, but for a short time I was part of them.

My Medical Education

The mission of Meharry is to train physicians who will provide care to underserved communities, a mission not necessarily shared by other medical schools. Although most Meharry graduates do not go into practice in underserved communities, a disproportionate percentage of minority physicians provide the health care that is available there. For this reason, schools like Meharry provide an immeasurable

My Social Education

I also became socially educated while at Meharry, ironically by experiencing some of the difficulties that minorities face. I found that most Caucasians, including myself, are essentially ignorant about the experience of minorities, never having lived in a comparable situation. I had always supported integration and equality among the races. As a Christian I believed that everyone was part of God's family, and my affection for all people, black and white, had always been equal. I naively assumed that because I was open to relationships with the black students, these relationships would occur.

From Department of Radiology, Bowman Gray School of Medicine, Wake Forest University, Winston-Salem 27157.

"I ... became socially educated while at Meharry, Ironically by experiencing some of the difficulties that minorities face."

I was wrong. During the first few days of orientation, I noticed all of the white students clustered in one area of the room. For a while I refused to join them because I wanted to get to know everyone. I was excited about the chance to make more black friends. But that never happened. Eventually I accepted the fact that my options for friendships at Meharry were limited to the small group of white students. A few of them became my close friends; however, I was, and still am, extremely saddened that I was unable to make close friendships with my black classmates.

Soon my small group of white classmates and I were isolated, in a sense. I began to realize that because of my appearance — white skin, green eyes and, particularly, blonde hair — I was shut out of the culture and lives of most of my fellow medical students. Exclusion seemed to occur by default rather than by conscious discrimination. When people were going out to clubs, parties or dinners, white students were usually not invited. At school functions, because only a few of us were present, we did not fit in, and our black classmates often seemed uncomfortable or uninterested in talking to us. Perhaps they assumed I did not want to be included because I might be uncomfortable at a "black

bar," "black" dinner party, or just in the company of black people. Perhaps they simply did not think about getting to know me or assumed that I was not interested in getting to know them. Some black students held the opinion that it was not appropriate for blacks to mix with whites, and through peer pressure made life uncomfortable for those who felt differently.

The consequences of living in this environment were loneliness and a feeling of being left out, unwanted, and unaccepted. For me these feelings were the most difficult part of attending Meharry. It was emotionally gruelling to feel unwanted and hopelessly rejected for no reason that I could control. Now I know the frustrations that minority groups face every day of their lives. Being in the role of a minority student increased my sensitivity to their history and experiences. Since then, I have never taken my own sense of belonging for granted. Unfortunately, many of my white classmates became bitter over their experience and left Meharry more biased than when they came. At times, everyone experiences unfair treatment, but for minorities this experience is often a way of life and can lead to the bitterness that is so common in minority communities. Having the tables turned was a first step in my understanding of how racial discrimination, intentional or not, feels to the victims.

Although it was difficult and painful, I am thankful for the medical and social education I received at Meharry Medical College. It has made me more sensitive to racial issues and has enhanced my empathy, compassion, and understanding for all people. I would happily attend Meharry again, not only for an excellent medical education, but also for the invaluable social insight I gained as a minority student. □

Editorial Comment

Dr. Lisa H. Lowe is an excellent radiology resident at one of the best radiology programs in the country. I became aware, in consulting with her about a case, that she had been to Meharry Medical College. She is an intelligent and thoughtful person who is troubled by some of the experiences she has had, although she has profited from them.

Having been raised myself in Knoxville, Tennessee, a Union stronghold during the Civil War, having spent 10 years in the Northeast in medical school and residency training, having served part of my time during World War II in the Southwest Pacific with a predominantly black

Army division, I was particularly touched by her conversation about this subject and by the commentary she wrote at my request.

When we see on TV or read in the papers and magazines about the numerous ethnic divisions the world over, when we remember the horrible Holocaust of World War II, when we see the many divisions in our own country, it helps to have an individual of intelligence and sensitivity reflect on an unusual educational experience as she has.

Eben Alexander, Jr., M.D.
Department of Neurosurgery
Bowman Gray Medical Center
Winston-Salem, NC 27157



SPECIALIZE IN AIR FORCE MEDICINE.

Become the dedicated physician you want to be while serving your country in today's Air Force. Discover the tremendous benefits of Air Force medicine. Talk to an Air Force medical program manager about the quality lifestyle, quality benefits and 30 days of vacation with pay per year that are part of a medical career with the Air Force. Find out how to qualify. Call

USAF Health Professions
Toll Free
1-800-423-USAF



Winchester®

Surgical Supply Company

Physician/

Hospital/

Home Care Supplies

3333 North Tryon Street
P.O. Box 35488
Charlotte, NC 28235
704/372-2240
800/874-2240

"Serving The Medical Profession Since 1919"

**Medical ♦ Surgical ♦ Laboratory ♦ Diagnostic
Equipment and Supplies**

Winchester Home Healthcare

Medical Supplies And Equipment For Your Patients At Home
Charlotte, North Carolina
704/332-1217

Physicians' Forum

To Encourage or Not to Encourage Our Children to Study Medicine

Edited by Eugene W. Linfors, M.D.

Question: Will you (or did you) encourage your children to study medicine? Please explain.

Raymond A. Gaskins, Jr., M.D.
Cape Fear Family Medical Care
Fayetteville, NC 28304

I have three children. My sons are aged thirteen and six, and my daughter is eleven. I have thus far not heavily encouraged them to pursue any particular profession. However, I have allowed them to accompany me on my rounds at times and to come with me to the hospital and to my office practice to familiarize them with what I do as a family physician. I would be extremely proud to have any or all of my children pursue a career in medicine.

I am dismayed to hear many of my colleagues strongly state that they would never want their children to pursue a career in medicine. Undoubtedly, we are all frustrated by the many forces changing both the practice and delivery of health care in our country. Still, this brings a tremendous opportunity to nudge change in a positive direction, if the medical professionals in our country will only seize the opportunity. Perhaps the practice of medicine as we know it will cease to exist in the next few years, but the future of health care in our country will be carried forward on the able shoulders of our children. For this reason, I believe that it is extremely important for physician parents to serve as role models for their own children, and for other children in their communities.

I could give you a much longer

answer, but I know of no better reason for encouraging my sons and daughter to choose medicine as a career than to simply say: "If I had it to do over again, I would be very happy to pursue my chosen career." □

Van Johnson, M.D.
Duke University School
of Medicine

Now in Orthopedics in Warren, PA
I have not encouraged any of my four children to study medicine, nor have I discouraged them. The decision to undertake the study of medicine is a highly personal one and should be a well-considered individual decision. However, if my children, or their peers, would express an interest in the study of medicine I would definitely encourage them. Despite the apparent deterioration in the public image of the physician, I feel the practice of medicine remains at its best a high calling and a vitally needed profession in this imperfect world.

The opportunities to serve to one's fellow human beings through medicine continue to increase as people live longer and as technology produces better short- and long-term solutions to previously unsolved medical problems. As a practicing orthopedic surgeon for over 16 years, I have seen arthroscopy develop from a very limited diagnostic tool into a large subspecialty of its own

that society depends upon and even takes for granted. I have seen diagnostic modalities such as magnetic resonance imaging and computerized tomography render obsolete less precise and more risky diagnostic modalities. I have watched total joint replacement evolve from experimental status in the university to widespread, relatively safe, and efficacious use in many community hospitals. And there are many other examples I could cite of scientific and technical progress inside and outside of my own particular specialty.

But I do not wish to imply that today's physicians are simply technicians whose job is to apply modern technology to society's ills and injuries. More than ever, we need the human element in the art of medicine. Patients still want and need caring, articulate physicians who will listen empathetically, respond appropriately to the patient's needs, maintain the patient's dignity during diagnosis and treatment, discuss the options for diagnosis and treatment openly and clearly, and offer support and relief of pain and suffering when there is no direct solution for a patient's medical problem.

I do not encourage students to enter medicine primarily to earn money. More lucrative careers are available in business, politics, and other fields. Physicians have, and I think will continue to have, reasonably good incomes since

our society values good health and since the health care needs of our longer-living population will only increase. But the major reason for undertaking the study of medicine should be the challenge and opportunity of service to our fellow human beings. □

W. Pope Jordan, M.D.

**Ob/Gyn training in Charlotte, NC
Now in practice in Rome, GA**

I represent the third generation of physicians on both sides of my family, but I was discouraged from entering medicine 25 years ago for several reasons: (1) there was increasing government involvement in medicine that would make socialized medicine "inevitable in five to ten years;" (2) there was a perceived loss of physician autonomy; (3) the physician patient relationship was seen to be "disintegrating" for a variety of socioeconomic reasons; and (4) there was the increasing threat of malpractice litigation. I have not found these dire predictions to be accurate, although all, to a greater or lesser extent, have impacted my specialty. Basically, I enjoy what I do and this affects my attitude about whether my offspring should practice medicine.

If my children are academically talented, with an interest in math and science, and if they are interested in medicine, I will encourage them. Children learn the vicissitudes of medical practice through home observation. Whether they are willing to accept the responsibility and rigor of the job is a personal decision. Thus far, the eldest of my four daughters graduated from college this year and wishes to attend law school; number two has some interest in medicine pending the outcome of college chemistry; number three is more interested in veterinary medicine, and number four is half-baked at age eleven. □

**David M. McConnell, Jr., M.D.
Duke University School
of Medicine
Now practicing Pediatrics in
Warren, PA**

The challenges that physicians face these days have changed from those we had to deal with in the early 1920s. The amount of required documentation has increased dramatically as has government regulation of many aspects of medicine. Today's new physicians start practice with much larger debts than previous generations. And the "information explosion" has made it hard to keep up with advancements even within one's own specialty.

Nevertheless, the fascination of medicine and its many intricacies remains a prime choice for those interested in bioscience combined with human interaction. Both of my own children are very interested in human problems—mainly in music and literature—but not particularly in science, and neither one had any great desire to endure the kind of sacrifice that they watched me put up with to become a practicing physician. I didn't encourage them to study medicine, since neither one had the inclination or the appropriate temperament for such a complex and lifelong pursuit. □

**Gustavo S. Montana, M.D.
Professor, Radiation Oncology
Duke University Medical Center
Durham, NC 27710**

My daughter did not express any interest in the health care fields while she was in high school or college. She was always interested in the liberal arts. But shortly before her graduation from college she suffered an injury and had to undergo surgery. This drastically changed her immediate post-graduation plans. During her recovery, she began thinking about a career in the health care field. In the ensuing two years she took science courses and did different kinds of volunteer work to improve her credentials for application to a professional school and to gain more understanding of health care. She herself came to the conclusion that a career in medicine would offer her a

wide range of opportunities in this and possibly other countries. Once she became interested in applying to medical school I was supportive of her interest and tried to help her see how she could fulfill her own personal goals after obtaining a medical degree. □

**Leonard R. Prosnitz, M.D.
Professor and Chairman
Radiation Oncology**

Duke University Medical Center

I have a son who is currently enrolled at Duke University Medical School. It was, of course, his idea, but once he had raised the issue I encouraged it. My reasons are as follows:

Medicine remains an intellectually challenging, personally satisfying profession despite its well known recent difficulties, both bureaucratic and financial. Doctors have the opportunity to do some real good in the world. We may be stressed often, but we are seldom bored. The job security is about as good as it gets nowadays. The financial rewards are likely to be less in the future than they have been, but my guess is they'll be more than adequate. □

**Ervin M. Thompson, M.D.
Psychiatry
Charlotte, NC**

I haven't encouraged my children to study medicine so far because, at ages 13 and 10, they are not yet interested in medicine. If they do become interested, I would still encourage them but warn them about the lengthy training, long hours, and declining income. □

Editor's Note:

I was a little leery about encouraging my children to enter the study of medicine. I decided to ask several classmates and other physicians of my personal acquaintance what they thought about this matter. After reading their responses I am much less concerned about whether the profession will "dry up" or not.

*Eugene W. Linfors, M.D.
Editor, Physicians' Forum*

Continuing Medical Education

September 14

Duke University Medical Center Pediatric HIV Conference

Place: Durham

Fee: \$50 (registration, breaks, luncheon, social hour and CME credit)

Info: Sonja Coble, Wake Medical Center, Po Box 14465, Raleigh 27620-4465. 919/250-8547

Hill, NC 27599-7000. 919/962-2118

Hill, NC 27599-7000. 919/962-2118

September 16-19

Sea Trail Medical Retreat and 10th Aesculapian Sports Classic

Place: Sea Trail Resort, Sunset Beach, NC

Credit: 12 hours Category I, AMA

Info: Beryl Mehurg, Coastal AHEC, 919/343-0161

September 30-October 2

Ross Ob/Gyn Society Annual Meeting

Place: Chapel Hill

Info: CME Office, CB #7000, 231 MacNider Building, UNC School of Medicine, Chapel Hill, NC 27599-7000. 919/962-2118

October 8-9

Frank R. Lock Ob/Gyn Symposium

Place: Winston-Salem

Credit: 7.5 hours Category I, AMA

Info: Division of CME, Bowman Gray School of Medicine. 919/716-4450 or 1-800/277-7654

September 17-19

NC Society of Anesthesiologists Annual Meeting

Place: Asheville

Credit: 9.0 hours Category I, AMA

Info: CME Office, CB #7000, 231 MacNider Building, UNC School of Medicine, Chapel Hill, NC 27599-7000. 919/962-2118

October 1

Rheumatology Update

Place: Winston-Salem

Credit: 6.5 hours Category I, AMA

Info: Division of CME, Bowman Gray School of Medicine. 919/716-4450 or 1-800/277-7654

October 15-16

Growth, Stature and Adaptation: An International Symposium on the Behavioral, Social & Cognitive Aspects of Growth Delay

Place: Chapel Hill

Credit: 11.0 hours Category I, AMA

Info: CME Office, CB #7000, 231 MacNider Building, UNC School of Medicine, Chapel Hill, NC 27599-7000. 919/962-2118

September 20-24

6th Annual North Carolina Transport Institute

Place: Chapel Hill

Credit: 28 hours Category I, AMA

Info: CME Office, CB #7000, 231 MacNider Building, UNC School of Medicine, Chapel Hill, NC 27599-7000. 919/962-2118

October 1-3

PA Satellite Comprehensive Review

Place: Winston-Salem

Credit: 17 hours Category I, AMA

Info: Division of CME, Bowman Gray School of Medicine. 919/716-4450 or 1-800/277-7654

October 16

Mammography Quality Control

Place: Asheville

Credit: 8.75 hours Category I, AMA

Info: CME Office, CB #7000, 231 MacNider Building, UNC School of Medicine, Chapel Hill, NC 27599-7000. 919/962-2118

October 6-7

Comprehensive Management of HIV Disease: A Clinical Tutorial for Physicians

Place: Chapel Hill

Credit: 16.5 hours Category I, AMA

Info: CME Office, CB #7000, 231 MacNider Building, UNC School of Medicine, Chapel Hill, NC 27599-7000. 919/962-2118

October 22-24

14th Mountain Medical Meeting

Place: Asheville

Credit: 12 hours Category I, AMA

Info: Division of CME, Bowman Gray School of Medicine. 919/716-4450 or 1-800/277-7654

Guidelines for Continuing Medical Education: The Journal provides free listings of workshops, courses, and other events approved for CME credit. We will run the listing for a maximum of three months prior to the event. Each event must include the following information: date, title, place, number of credit hours, fees, and name, address, and phone number of contact person. Send to: Continuing Medical Education, *North Carolina Medical Journal*, Box 3910 DUMC, Durham, NC 27710; or fax to: 919-286-9219.

October 8

Sexually Transmitted Diseases: Epidemiologic Realities and Rational Public Health Policy

Place: Chapel Hill

Credit: 6.1 hours Category I, AMA

Info: CME Office, CB #7000, 231 MacNider Building, UNC School of Medicine, Chapel Hill, NC 27599-7000. 919/962-2118

October 22-24

Musculoskeletal Pathology Review 1993: A Clinician's Approach

Place: Winston-Salem

Credit: 20 hours Category I, AMA

Info: Division of CME, Bowman Gray School of Medicine. 919/716-4450 or 1-800/277-7654

October 23

Symposium on Minority Health Issues - Treating the Patient, Not Just the Disease: A Multidisciplinary Approach

Place: Durham

Credit: 7 hours CME/CEU, AAPA

Info: James H. Carter, Jr., PA, 919/684-2937

October 24-27

15th Annual Meeting of the Society for Medical Decision Making

Place: Raleigh/Durham

Credit: 26 hours of Category I, AMA

Fee: \$225 - member; \$250 - non-member; \$110 students

Info: Maria Gorrick, SMDM, Office of CME, 2300 K. Street, NW, Washington, DC 20037. 202/994-4285, 202/994-1701

October 29

5th Annual Clinical Cancer Symposium: Challenges in the Prevention and Treatment of Bronchogenic Carcinoma

Place: Chapel Hill

Credit: 5.5 hours Category I, AMA

Info: CME Office, CB #7000, 231 MacNider Building, UNC

School of Medicine, Chapel Hill, NC 27599-7000. 919/962-2118

October 29-30

Fall Medical Alumni Weekend

Place: Chapel Hill

Info: CME Office, CB #7000, 231 MacNider Building, UNC

School of Medicine, Chapel Hill, NC 27599-7000. 919/962-2118

October 29-31

Seventh Biennial Teaching Internal Medicine Symposium - Association of Professors of Internal Medicine and Association of Program Directors of Internal Medicine

Place: Research Triangle Park

Credit: 12.5 hours Category I, AMA

Info: CME Office, CB #7000, 231 MacNider Building, UNC School of Medicine, Chapel Hill, NC 27599-7000. 919/962-2118

November 3-5

Second International Symposium on Inhibitors to Coagulation Factors

Place: Chapel Hill

Credit: 15.0 hours Category I, AMA

Fee: \$300

Info: Office of CME, UNC School of Medicine, CB #7000, Chapel Hill NC 27599-7000. 919/962-2118

November 4-5

Comprehensive Management of HIV Disease: A Clinical Tutorial for Physicians

Place: Chapel Hill

Credit: 16.5 hours Category I, AMA

Info: Office of CME, UNC School of Medicine, CB #7000, Chapel Hill NC 27599-7000. 919/962-2118

November 5-6

Current Therapy in Vascular Surgery

Place: Chapel Hill

Credit: 10.8 hours Category I, AMA

Info: Office of CME, UNC School of Medicine, CB #7000, Chapel Hill NC 27599-7000. 919/962-2118

November 12

Current Topics in Gastroenterology for the Specialist and the Generalist Physician

Place: Chapel Hill

Credit: 5.75 hours Category I, AMA

Info: Office of CME, UNC School of Medicine, CB #7000, Chapel Hill NC 27599-7000. 919/962-2118

November 12-13

BGSM Alumni Weekend

Place: Winston-Salem

Credit: 4 hours Category I, AMA

Info: Division of CME, Bowman Gray School of Medicine. 919/716-4450 or 1-

800/277-7654

November 13-14

George Ham Psychiatry Society Meeting

Place: Chapel Hill

Info: Office of CME, UNC School of Medicine, CB #7000, Chapel Hill NC 27599-7000. 919/962-2118

November 13-14

Advanced Cardiac Life Support Course

Place: Chapel Hill

Credit: 15.5 hours Category I, AMA

Info: Office of CME, UNC School of Medicine, CB #7000, Chapel Hill NC 27599-7000. 919/962-2118

November 19-20

Practical Approach to the Diagnosis and Treatment of Lung and Gut Problems in Children

Place: Durham

Credit: hours pending

Fee: \$150

Info: Joseph Marc Majure, M.D., DUMC, Box 2994, Durham, NC 27710. 919/684-2289, 3364; Fax 919/684-2292

November 19-21

Winter Family Physicians Weekend

Place: Asheville

Info: Rodney Webb, Director of CME, NCAFP, PO Box 18469, Raleigh, NC 27619. 919/781-6467.

Moving?

If you are planning to move within the next two months, let us know where we can send your **North Carolina Medical Journal**.

Print your old address here or attach a mailing label:

Name _____

Old Address _____

City _____ Zip _____

Print your new mailing address here:

Name _____

New Address _____

City _____ Zip _____

Cut out and return this form to:
North Carolina Medical Journal
P.O. Box 3910, Duke University Medical Center
Durham, NC 27710

Classified Advertisements

OXFORD, NC: 38 year old family doctor needs BC family practitioner to share the practice of 67 year old "ready to retire" partner. Call E.D. Day, M.D., 919/693-8126, 9am to 5pm; 919/693-1715, nights/weekends.

URGENT CARE - Immediate opportunity for FP/GP/IM. Forty hour weeks, competitive compensation, independent contractor status. Stable organization since 1979 with strong commitment to quality urgent care and industrial medicine. Clifford K. Callaway, MD, PO Box 667967, Charlotte, NC 28266. 704/521-5075

RALEIGH, NC: Practice opportunity. Join three pediatrician-group in educational, cultural city. Teaching opportunities, consultations at nearby medical centers. Inquire Oberlin Road Pediatrics, 1321 Oberlin Road, Raleigh, NC 27608, or call Mary Anne Clark at 919/828-4747.

JAMESTOWN: Busy ambulatory care centers here and in Danville, VA, seek BC/BE Family or Emergency medicine practitioners. Excellent salary/benefits package. Send CV: Dr. W. William Ameen, POB 1176, Jamestown, NC 27282.

PHYSICIAN'S ASSISTANT - CARDIOLOGY: PA to join solo cardiologist in broad-based clinical practice. Cardiology experience desirable but not mandatory. Experience in internal medicine necessary. Competitive salary and benefits. Practice is satellite office of large cardiovascular group. Town of 25,000 with new 230 bed community hospital with catheter lab. Contact Code #20, Duke University Medical Center, Box 3910, Durham, NC 27710.

THE BANANA PEEL. A business management newsletter containing inside information drawn from physicians' experiences. Call 1-800/SLIPUPS or write The Banana Peel, 2177 Barry Drive, Fort Myers, FL 33907 for your complimentary copy. (ISSN 1069-9449)

HAPPINESS AND PROFESSIONAL SATISFACTION FOR TWO: A workshop for physicians and their spouses concerned with burnout. St. Christopher Conference Center on Seabrook Island, S.C. Encore of a previous

MEDICAL DIRECTOR

Blue Cross Blue Shield of North Carolina is seeking a Medical Director to provide medical expertise in review of Pre-Admission Certification and individual case review and management. The successful candidate will provide medical expertise in review of health technologies and services to determine coverage eligibility under Plan certificates. Will be responsible for administering and monitoring the Plan's medical review procedures and developing new programs to the end of improving health and containing health care costs for Plan subscribers.

Educational background must include a Doctor of Medicine degree and be qualified to obtain a license to practice medicine and surgery in North Carolina. Experience in utilization review and quality assurance is preferred but not required. Applicant should have broad experience in the field of medicine in a primary care discipline (Family Medicine and Internal Medicine given preference); and have demonstrated the ability to remain knowledgeable of current developments in medicine.

Req. #399, Job #E0741.

We offer a competitive salary and comprehensive benefits package. **Qualified candidates please send resume and salary history, including Req.# and Job. # for which you are applying, to: Personnel Department/DB, BCBSNC, P.O. Box 2291, Durham, NC 27702.** No phone calls please. For a weekly updated list of current opportunities, call "JOEL", our 24-hour Job Opportunity Employment Line at (919) 490-2850 from touch-tone phone. EEO/AA Employer M/F/D/V. Minorities and women are encouraged to apply.



**Blue Cross
Blue Shield
of North Carolina**

*For Classified Advertising rates and information, call the **North Carolina Medical Journal** at 919-286-6412. You may also fax ad copy to 919-286-9219.*

highly praised workshop. Attendance limited. CME credits. November 12-14, 1993. Call or write Donald E. Saunders, Jr., M.D., USC School of Medicine, 3555 Harden St. Ext., Columbia, SC 29208. 803/434-4214

CLINICAL ASSISTANT PROFESSOR - Position available for full time physician to develop a comprehensive health promotion program and provide ongoing occupational health care for a 2,000 member group of law enforcement officers. The position, based in Garner, NC, will work with law enforcement agencies and the Division of General Internal Medicine, Department of Medicine in development of the program. Research opportunities exist in the area of health maintenance and preventive medicine in conjunction with the Division of General Internal Medicine and the UNC Center for Health Promotion and Disease Prevention. Applicants should have an M.D. degree and be Board certified or eligible in Internal Medicine. Applications should be sent to: Dr. Timothy Carey; Division of General Medicine; CB #7110, Old Clinic Bldg.; UNC School of Medicine; Chapel Hill, NC 27599-7110. UNC-CH is an Equal Opportunity/Affirmative Action Employer and encourages applications from women and members of minority groups.

COMPUTERS*KNOWLEDGE*VALUE

A COMPUTER COMPANY THAT UNDERSTANDS MEDICAL OFFICE NEEDS!

ValuSystems
MEDICAL OFFICE AUTOMATION

**TOTAL COMPUTER
HARDWARE AND
SOFTWARE SOLUTIONS
FOR THE MEDICAL AND
DENTAL OFFICE,
INCLUDING ELECTRONIC
CLAIMS,
COMPREHENSIVE
TRAINING, AND
EXCELLENT SERVICE!**

919 538-4991 OR 1 800 4VALUSYSTEMS

It's your choice:

**4 hours at 4 auto dealers
haggling over \$400**
or

**4 hours on the links with
your favorite foursome.**

That's right. While you're attending to more pressing issues, Auto Brokers International can locate the best deal on the car of your choice. We shop, we haggle, we negotiate. **And, if we can't save you time and money, we don't get paid. Period.**

787-1098

Long distance
1-800-645-6413

**AUTO BROKERS
INTERNATIONAL, INC.**

3301 Woman's Club Drive, Suite 127
Raleigh, North Carolina 27612
(919) 787-1098 FAX 787-1098



EXCELLENT PRACTICE OPPORTUNITY!

FOR

BOARD CERTIFIED INTERNIST

Internal Medicine practice in Burlington, North Carolina seeks a BC/BE Internist to join an established and growing practice. Alamance County is a thriving community that offers excellent quality of life, and is located less than 45 minutes from Greensboro, Durham, Chapel Hill, and Raleigh. A new state-of-the-art regional hospital now under construction. Call scheduled one day per week, one weekend per month. Competitive starting salary, benefits, and flexible partnership options. Send CV in confidentiality to:

Alamance Internal Medicine
711 Hermitage Road Burlington, NC 27215
Or call 919 538-1003

New Members

- Robert Lipscomb Alexander (PA), 709 Barker St., Salisbury 28144
- Donald Stevick Allen (PA), Carolinas Medical Center, 1000 Blythe Blvd., Charlotte 28232
- Darrell Keviin Allred (PA), 2205 New Garden Rd., Apt. 1302, Greensboro 27410
- Christopher Lee Amling (RESIDENT), 4600 American Dr., Durham 27705
- Stephen H. Begley (PA), 8312 Creedmoor Road, Raleigh 27613
- Kenneth Roland Blanton (PA), Bowman Gray, Cardiothoracic Surgery, Medical Center Blvd., Winston-Salem 27157
- Marilyn McGrath Bullaboy (PA), Bowman Gray School of Medicine, Medical Center Blvd., Winston-Salem 27157
- Jeffery Alan Chance (PA), Albemarle Family Medical Ctr., 320 Yadkin St., Albemarle 28001
- Peggy Kiser Cotton (PA), HCR #2, Box 508, Bracey 23919
- Laura Gail Curtis (PA), Bowman Gray School of Medicine, Medical Center Blvd., Winston-Salem 27157
- Patricia McKelvey Dieter (PA), 413 Gentry Lane, Hillsborough 27278
- John Edwin Dobbins (PA), Bowman Gray, Cardiothoracic Surgery, Medical Center Blvd., Winston-Salem 27157
- Tommy Kaye Earnhardt (PA), 8560 Cook St., Mt. Pleasant 28124
- John Hume Faulkner (PA), 220 Smith Church Road, Roanoke Rapids 27870
- Peter Allen Fenn (PA), 5532 Dunnallie Dr., Fuquay-Varina 27526
- Brian Earl Grogg (STUDENT), 130 Kingsbury Dr., Chapel Hill 27514
- Robert Charles Hall (PA), Thomas Rehabilitation Hospital, PO Box 15025, Asheville 28813
- Carol Anne McAllister Harrell (PA), 2130 Pine Drive, Raleigh 27608
- Albert William Hedgepeth, Jr., (PA), 309 Clarendon Crescent, Raleigh 27610
- James Walter Heine (PA), 2310 Gunston Ct., Fayetteville 28303
- Robert Henry Holliday, Jr. (PA), 3418 Scarsborough Dr., Winston-Salem 27104
- Jimmy Edward Johnson (PA), 42 S. Park Road, N. Wilkesboro 28659
- Larry Thomas Jones (PD), 3350 Six Forks Road, Raleigh 27609
- Mary Louise Kancevitch (PA), Western Carolina Surgery Associates, 445 Biltmore Ave., Ste. 505, Asheville 28801
- Melanie Marie Tradd Kersey (PA), 322 Mulberry St., SW, PO Box 1020, Lenoir 28645
- Charles Edward Kober (PA), 108 Tara Lynn Dr., Mooresville 28115
- Sidney Wilson Lavender, II (PA), Bowman Gray, Dept. CT Surgery, Medical Center Blvd., Winston-Salem 27157
- Bryan Wright Lee (PA), PO Box 53293, Fayetteville 28305
- Richard Paul Leshock (PA), Route #14, Box 2520, Lexington 27292
- Kenneth Edgar Lewis (PA), Bowman Gray, CT Surgery, Medical Center Blvd., Winston-Salem 27157
- Joseph Edwin Lindahl (PA), Miller Orthopaedic Clinic, 1001 Blythe Blvd., #200, Charlotte 28203
- Philip James Mapes (PA), Cape Fear Orthopaedic Clinic, 1300 Medical Dr. Fayetteville 28304
- Sheila Lee Marshall (PA), 3905 King Edward Court, Greensboro 27455
- Charles Andrew Martin (PA), 2246 Sherwood Dr., Winston-Salem 27103
- Dean Lincoln Minton, Sr. (PA), 2901 Colony Road, Charlotte 28211
- Todd David Morrell (STUDENT), 2338 Thunder Road, Durham 27712
- Diane Lancaster Mullins (PA), 2400 Wayne Mem. Dr., Ste. A, Goldsboro 27530
- Fausta Nazaire (STUDENT), 1907 Erwin Rd., Apt. H, Durham 27705
- Gary Glenn Nichols (PA), PO Box 1128, N. Wilkesboro 28659
- Mark Alan Payne (PA), 606 N. Elm St., High Point, 27262
- Donald Douglas Peterson (U), 408 8th St., PO Box 159, N. Wilkesboro 28659
- Shawn Montgomery Rayburn (PA), 121 Catherwood Place, Cary 27511
- Alan Jordan Reid (PA), The Davidson Clinic, PO Box 1570, Davidson 28036
- Terry Lee Rinehardt (PA), 183 Crawley Creek Road, Carthage 28327
- Wesley Gordon Schooler (STUDENT), 300 Highway 54, Apt. 35, Carrboro 27510
- Wendy Wright Simmons (PA), 2321 Delaney Ave., Wilmington 28403
- Harold Truett Smith, Jr. (PA), 217 Travis Avenue, Charlotte 28204
- Kathryn L. Stokes (PA), 1350 S. Kings Dr., Charlotte 28207
- John Smothers Strader (PA), 536 E. Jones St., Raleigh 27605
- James Michael Sullivan (PA), Shoeheel Medical Arts, Maxton 28364
- Karen Agnes Talbert (PA), Thomas Rehabilitation Hosp. PO Box 15025, Asheville 28813
- Annette Veronica Wagner (STUDENT), 1402 Treybrooke Cir., Greenville 27834
- Wilhelmine Wiese (RESIDENT), 1515 Treybrooke Cir. Greenville 27834
- Barbara Jean Williams (PA), Thomas Rehabilitation Hosp., PO Box 25025, Asheville 28813
- Milton Lee Wright (PA), Victoria Urological Assoc., 100 Victoria Road, Asheville 28801
- Steven Herman Zeisel, (NTR), UNC Dept. of Nutrition, CB #7400, Chapel Hill 27599
- Buncombe**
- George Harold Naramore (P), 239 S. French Broad Ave. Asheville 28801.
- John McNeill Smith, III (AN), 202 Doctor's Bldg., Asheville 28801
- Cabarrus**
- Gwendolyn Ruth Whitley (FP), 559 Jackson Park Rd., Kannapolis 28081

Columbus

Richard Alan Waldman (PD), 903
Jefferson St., Whiteville 28472

Durham-Orange

Timothy Stephen Carey (IM), CB 7110,
UNC Dept. of Medicine, Chapel
Hill 27599

Walter Earle Fowler (IM), PO Box
16999, Durham 27704

Jacob Andrew Lohr (PD), UNC Com-
munity Pediatrics, CB #7225, Chapel
Hill 27599

John Douglas Wilson (RESIDENT),
UNC Hospital, Dept. of Radiology,
CB #7510, Chapel Hill 27599

Harold Russell Wright, Jr. (OTO), 1110
W. Main St., Durham 27701

Forsyth-Stokes-Davie

Jeffrey Easton Kelsey (P), Bowman
Gray, Dept. of Psychiatry, Medical
Center Blvd., Winston-Salem 27157

Gaston

James Loring Bergman (FP), 991 W.
Hudson Blvd., Gastonia 28052

Greater Greensboro Society of Medi-
cine

Kurt Lauenstein (FP), UNC-G Student
Health Service, Greensboro 27412

Iredell

Richard Michael Pavelock (IM), Rt.
#9, Box 183-P, Statesville 28677

Mecklenburg

Stephen Anthony Colucciello (EM),
Carolinas Medical Center, PO Box
32861, Charlotte 28232

David J. Framm (IM), 3535 Randolph
Road, Charlotte 28211

Stephen C. Hardy (N), Mecklenburg
Neurological Assoc., 1900 Randolph
Rd. #1010, Charlotte 28207

Joann Mace (PM), 5123 Blue Spruce
Lane, Charlotte 28227

Peter S. Turk (GS), 2300 Randolph
Road, Charlotte 28207

Moore

Lawrence Burt Place (AN), 295 Cliff
Road, Southern Pines 28387

New Hanover-Pender

Jerome Thomas Nolan, Jr. (EM), 1112
Two Mile Circle, West, Wilmington
28405

Onslow

Richard Kin-Fook Leung (IM), 158
Memorial Court, Jacksonville 28546

Pitt

Paul Ethan Austin (EM), ECU Dept. of
Emergency Med., Greenville 27858

Leanna Jo Fogleman (STUDENT), 1-
10 Doctors Park Apts., Greenville
27834

Robeson

Frank Edward Carballo (IM), 395 W.
27th Street, Lumberton 28358

Rockingham

Thomas Ross Coleman (GPM), 110
Henry St., PO Box 825, Stoneville
27048

Stanly

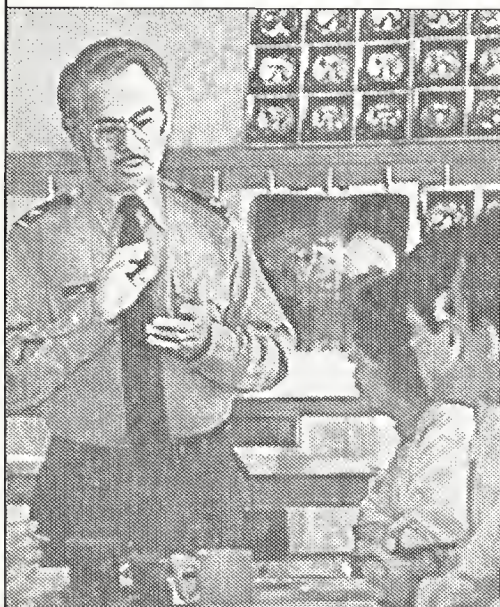
Chandranayan N. Joshi (IM), 223 W.
Third St., Oakboro 28129

Wake

James Belknap Collawn (AN), 304
Shaftsberry Ct., Raleigh 27609

Scott Steven Sanitate (PM), 3000 New
Bern Ave., Raleigh 27610

THE ARMY RESERVE OFFERS UNIQUE AND REWARDING EXPERIENCES.



As a medical officer in the Army Reserve you will be offered a variety of challenges and rewards. You will also have a unique array of advantages that will add a new dimension to your civilian career, such as:

- special training programs
- advanced casualty care
- advanced trauma life support
- flight medicine
- continuing medical education programs and conferences
- physician networking
- attractive retirement benefits
- change of pace

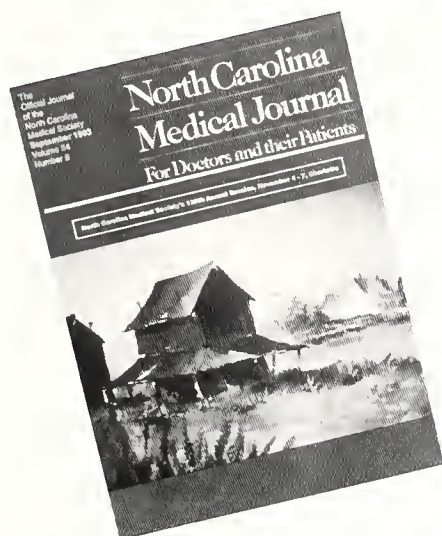
It could be to your advantage to find out how well the Army Reserve will treat you for a small amount of your time. An Army Reserve Medical Counselor can tell you more, call:

Collect 919-493-1364

ARMY RESERVE MEDICINE. BE ALL YOU CAN BE.®

The North Carolina Medical Journal

Recommended Reading for All Physicians and Health Care Professionals



Each month, the **Journal** presents a lively and diverse mix of medical and health care-related topics, from scientific to socioeconomic, plus a special pull-out section written for patients.

Physicians in all specialties as well as health care professionals in other fields read the **Journal** because it provides them with information pertinent to their community, their practices, and their professions.

Subscribe for yourself, or treat a friend or colleague to a 1-year gift subscription by simply filling out the coupon below.

Method of Payment:

☐ \$17 Check or money order enclosed, payable to the **North Carolina Medical Journal**. (NC residents add 6% sales tax)

☐ Charge to: VISA _____
M/C _____

Name on Card: _____

Account #: _____

Expiration Date: _____

☐ New ☐ Renewal

Send to: The **North Carolina Medical Journal**, Box 3910, Duke University Medical Center, Durham NC 27710.

Please start my 1-year subscription*:

My Name _____

Address _____

City/State/Zip _____

Please send a 1-year gift subscription to*:

Name _____

Address _____

City/State/Zip _____

*Please allow 4-6 weeks for delivery of the first issue.

Aphorisms of the Month

Daniel Sexton, M.D., Editor

The significant problems we face cannot be solved at the same level of thinking we were at when we created them.

—Albert Einstein

We are what we repeatedly do. Excellence, then, is not an act, but a habit.

—Aristotle

It's not that I'm afraid to die, I just don't want to be there when it happens.

—Woody Allen

Peace comes not from the absence of conflict in life, but from the ability to cope with it.

—Author unknown

It is one of the most beautiful compensations of this life, that no man can sincerely try to help another . . . without helping himself.

—William Shakespeare

To handle yourself, use your head; to handle others, use your heart.

—Donald Laird

You don't have to choose how you're going to die. Or when. You can only decide you're going to live.

—Joan Baez

We make a living by what we get, but we make a life by what we give.

—Norman Mac Ewan

The "art of medicine" is a complex and vague entity . . . not easily described, but easily recognized.

—Author unknown

It falls to the lot of few men to appreciate properly the effect of various modes of treatment in a particular disease; for if a patient recovers, whatever was the treatment, good or bad, we flatter ourselves it was the effect of our superior merit in conducting the disease; but future experience may convince us that the recovery of which we so vainly boasted, was a victory of nature over the malpractice of art.

—Edward Kentish, 1797

Contributed by Carolyn Ferree, M.D., Bowman Gray School of Medicine, Winston-Salem, NC 27157.

Index to Advertisers

Alamance Internal Medicine	484
Auto Brokers, International	484
Blue Cross Blue Shield of NC	483
CompHealth	467
CompuSystems, Inc.	Back cover
Deweese Island, SC	475
Department of Pediatrics, Duke University Medical Center	468
Dupont	Insert after page 436
Eli Lilly & Co.	442
IBM	431
Medical Mutual Insurance Co.	Inside front cover
Medical Protective Co.	Inside back cover
Mid-Atlantic Consulting Services	462
National Livestock & Meat Board	461
The Nottingham Company	429
Palisades Pharmaceuticals	474
St. Paul Fire and Marine Insurance Co.	441
U.S. Air Force	478
U.S. Air Force Reserve	437
U.S. Army	446
U.S. Army Reserve	486
ValuSystems	484
Winchester Surgical Supply	478

We've been defending doctors since these were the state of the art.



Turn of the century trephine for cranial surgery and tonsillotome for removing tonsils.

These instruments were the best available at the turn of the century. So was our professional liability coverage for doctors. In fact, we pioneered the concept of professional protection in 1899 and have been providing this important service exclusively to doctors ever since.

You can be sure we'll always offer the most complete professional liability coverage you can carry. Plus the personal attention and claims prevention assistance you deserve. For more information about Medical Protective coverage, contact your Medical Protective Company general agent.

MEDICAL PROTECTIVE COMPANY
FORT WAYNE, INDIANA

Stuart Mitchelson
Suite 450, 10722 Carmel Commons Boulevard, Pineville, NC 28226
(704) 541-8020 or (704) 541-8021
(800) 633-2285

Robert Dowdy, J. Michael Luther
Suite 230, 2000 Regency Parkway
Cary, NC 27511, (919) 467-8370
(800) 633-2285





"The peace of mind I get from CompuSystems is the best testimonial I can give."

R. Bruce Jackson II, M.D., Boone, NC

Computer systems to fit your needs

"I first read an ad for CompuSystems on the back of this same journal. At the time, I had an older computer system that just wasn't meeting my needs. Then I learned that a change in the system to allow electronic filing would be quite expensive without really improving it.

"We invited a CompuSystems salesman by. His demonstration of the system in my office showed me that the enthusiastic references I'd heard weren't just hype. He took time to get to know our practice, and he helped us decide on a configuration that suits our needs. No pressure, just a responsive professional who answered all our questions."

Software that inspires confidence

"Now that we're using the system, I find I'm no longer worrying about the billing

and collections in my office. The age of my receivables has been dramatically reduced. I can design my own reports to extract almost any information from the system. Most of all, I'm confident that the business side of my practice is under control."

Gaining peace of mind

"The peace of mind I get from CompuSystems is the best testimonial I can give. It's an investment that allows me to focus on practicing medicine, instead of on the business of medicine.

"If you'd like to hear more, please feel free to call me or drop by."

- *More physicians in North and South Carolina choose CompuSystems' Medical Insurance Processing and Billing System than any other.*
- *Electronic filing directly to North Carolina Medicare, Medicaid, and BC/BS with no per-claim charges.*
- *Features to maximize return, improve cash flow, and increase productivity.*
- *"One-call" total system support, including on-site hardware service.*



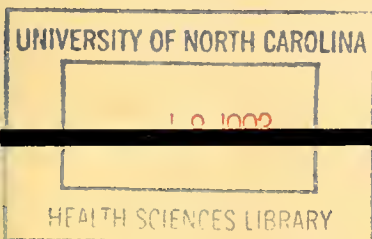
CompuSystems
INC.

Call now for details: 800-800-6472

The
Official Journal
of the
North Carolina
Medical Society
October 1993
Volume 54
Number 10

North Carolina Medical Journal

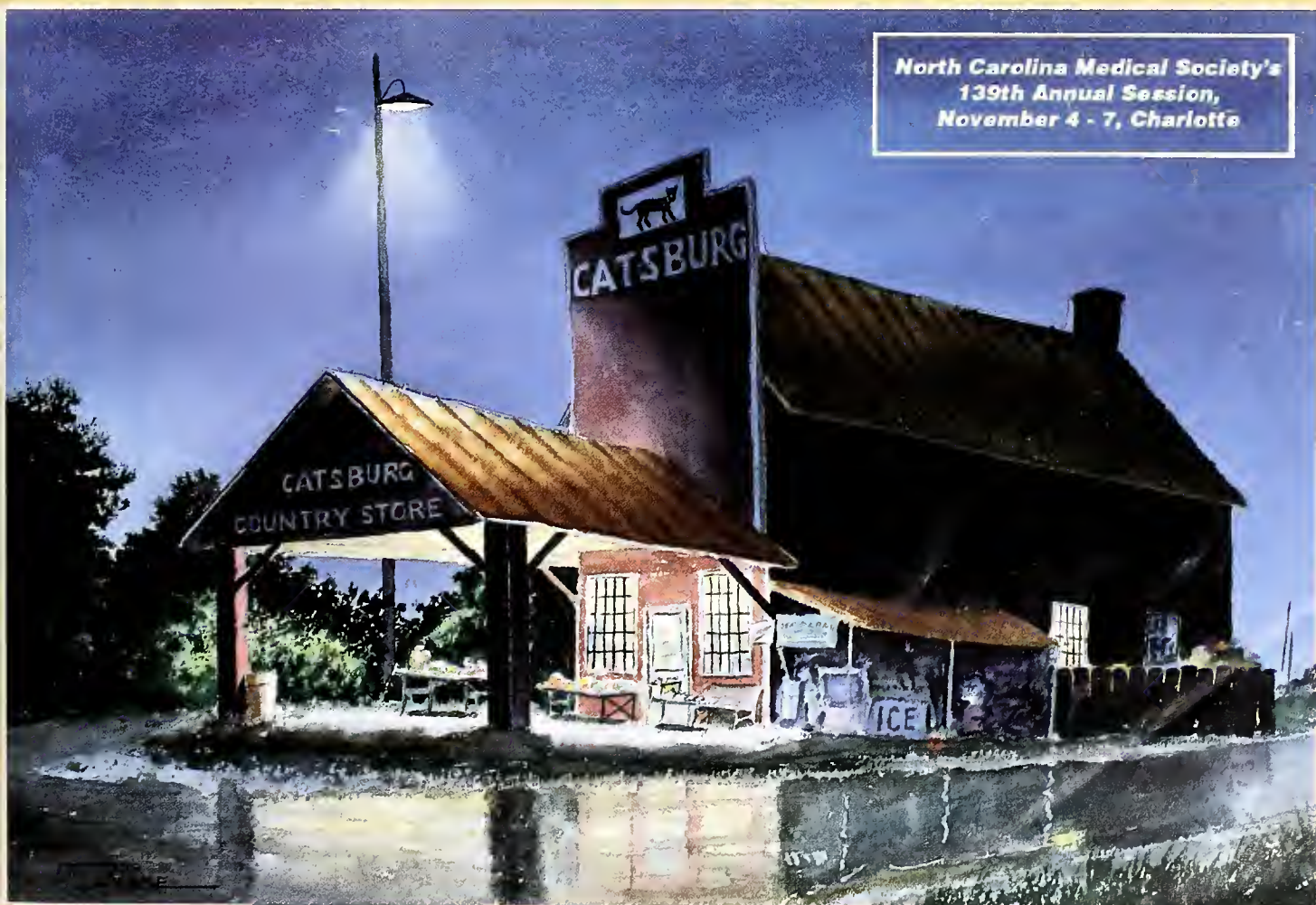
For Doctors and their Patients



SPECIAL ISSUE:

Rural Health in North Carolina

Ricky Langley, M.D., M.P.H., Guest Editor



THERE IS
SOMETHING
IN OUR NAME
THAT BRINGS YOU
A FEELING OF
SECURITY.

CRUMPTON COMPANY

INSURANCE & ASSET MANAGEMENT

CRUMPTON COMPANY, INC.

PROFESSIONAL INSURANCE CONSULTANTS

CRUMPTON INVESTMENT COUNSEL, INC.

REGISTERED INVESTMENT ADVISOR

3001 Academy Center, P.O. Drawer 51939, Durham, N.C. 27717-1939, (800) 672-1674

NORTH CAROLINA MEDICAL JOURNAL

For Doctors and their Patients

Published Monthly as the Official Organ of the North Carolina Medical Society

October 1993, Volume 54, Number 10

(ISSN 0029-2559)

EDITOR

Francis A. Neelon, M.D.
Durham
919-286-6409

DEPUTY EDITOR

Edward C. Halperin, M.D.

CONSULTING EDITOR

Eugene A. Stead, Jr., M.D.

ASSOCIATE EDITORS

Eben Alexander, Jr., M.D.
Winston-Salem
William B. Blythe, M.D.
Chapel Hill
F. Maxton Mauney, Jr., M.D.
Asheville
Walter J. Pories, M.D.
Greenville

MANAGING EDITOR

Jeanne C. Yohn
Durham
919-286-6410
fax: 919-286-9219

EDITORIAL ASSISTANT

Jane Whalen

SECTION EDITORS

Eugene W. Linfors, M.D.
Daniel J. Sexton, M.D.

BUSINESS MANAGER

George E. Moore
Raleigh

EDITORIAL BOARD

Margaret N. Harker, M.D.,
Morehead City, CHAIR

MEMBERS

Jay Arena, M.D.
Durham
William B. Blythe, M.D.
Chapel Hill
Jack Hughes, M.D.
Durham
Timothy W. Lane, M.D.
Greensboro
Eugene S. Mayer, M.D.
Chapel Hill
Walter J. Pories, M.D.
Greenville
Robert W. Prichard, M.D.
Winston-Salem
Mary J. Raab, M.D.
Greenville

The Society is not to be considered as endorsing the views and opinions advanced by authors of papers delivered at the Annual Meeting or published in the official publication of the Society.—*Constitution and Bylaws of the North Carolina Medical Society*. Chap. IV, Section 3, pg. 4.

NORTH CAROLINA MEDICAL JOURNAL

Box 3910, Duke University Medical Center, Durham NC 27710, (919-286-6410/fax: 919-286-9219), is owned and published by The North Carolina Medical Society under the direction of its Editorial Board. Copyright©1993 The North Carolina Medical Society. Address manuscripts and communications regarding editorial matters, subscription rates, etc., to the Managing Editor at the Durham address listed above. Listed in *Index Medicus*. All advertisements are accepted subject to the approval of the Editorial Board of the North Carolina Medical Journal. The appearance of an advertisement in this publication does not constitute any endorsement of the subject or claims of the advertisement.

Advertising representatives: United Media Associates, Karl Messerly, 16 Bruce Park Ave., Greenwich CT 06830; 203-661-9702; and Don French, Box 2093, Cary NC 27511; 919-467-8515.

Printing: The Ovid Bell Press, Inc., 1201-05 Bluff St., Fulton MO 65251.

Annual subscription (12 issues): \$17 (plus 6% tax in NC = \$18.02). Single copies: \$2. Second-class postage paid at Raleigh NC 27601, and at additional mailing offices. **POSTMASTER: SEND ADDRESS CHANGES TO THE NORTH CAROLINA MEDICAL SOCIETY, 222 N. PERSON ST., RALEIGH NC 27601.**

Winchester[®]

Surgical Supply Company

Physician/

Hospital/

Home Care Supplies

3333 North Tryon Street
P.O. Box 35488
Charlotte, NC 28235
704/372-2240
800/874-2240

"Serving The Medical Profession Since 1919"

**Medical ♦ Surgical ♦ Laboratory ♦ Diagnostic
Equipment and Supplies**

Winchester Home Healthcare

Medical Supplies And Equipment For Your Patients At Home
Charlotte, North Carolina
704/332-1217

North Carolina Medical Journal

FOR DOCTORS AND THEIR PATIENTS

Contents / October 1993, Volume 54, Number 10

On the cover: "Open Late" (watercolor, 1991), by Durham artist Bob Blake, illustrates the timeworn charm of the old Catsburg General Store, an appropriate backdrop for this month's special issue on rural health in North Carolina.

SPECIAL ISSUE: Rural Health

FROM THE GUEST EDITOR

- 494 Rural Health in North Carolina *Ricky L. Langley, M.D., M.P.H.*

PRIMARY CARE IN RURAL NORTH CAROLINA

- 496 A Report from the Community Practitioner Program *E. Harvey Estes, Jr., M.D.*
501 Extending and Enhancing Health Care through the North Carolina Cooperative Extension Service
Barbara Garland, M.P.H., Ph.D., and Steve Derthick, M.P.H.
505 Caring for People in Eastern North Carolina *James G. Jones, M.D.*

INJURY CONTROL

- 508 An Injury Control Strategy for Rural North Carolina *Thomas B. Cole, M.D., M.P.H.*
512 Agricultural Hazards in North Carolina *Judy Bernhardt, R.N., Ph.D., and Ricky L. Langley, M.D., M.P.H.*

AIDS

- 517 AIDS in Rural North Carolina *Richard L. Rumley, M.D., and James D. Esinhart, Ph.D.*

HEALTH WATCH

- 523 Drug Compliance: Are You Getting the Most Out of Your Medicine? *Debra P. Futrell, Pharm.D.*
525 When "My Heart Stood Still" *David G. Welton, M.D.*

INFANT MORTALITY

- 528 Infant Mortality in Rural North Carolina *Walter L. Shepherd*

CHRONIC DISEASE

- 532 Reducing the Burden of Chronic Disease in Rural North Carolina
Georjean Stoodt, M.D., M.P.H., and Eugene J. Lengerich, V.M.D., MS

INFECTION CONTROL

- 537 Infections Acquired in the Great Out-of-Doors of North Carolina *David J. Weber, M.D., M.P.H.*

ENVIRONMENTAL HEALTH

- 543 Environmental Conditions in Rural North Carolina *Trenton G. Davis, Dr.P.H.*

PSYCHIATRY

- 547 Confronting Psychiatric Problems and Issues in Rural Areas: With Help from Primary Care Physicians
J. Frank James, M.D.

FOLK MEDICINE

- 550 The Reinvention of Traditional Medicine in Western North Carolina
Heidi Kelley, Ph.D., Catherine O'Sullivan, Joan M. Reed, B.A., and Jean Sexton

BULLETIN BOARD

- | | | |
|---|-----|------------------------------|
| Letters to the Editor: | 553 | Classified Advertisements |
| 492 A Thank-You for Article on Physician Assistants | 555 | Continuing Medical Education |
| Request to Reprint | 557 | New Members |
| In Appreciation of Articles on the City of Medicine | 558 | Subscription Form |
| 492 Pearl of the Month | 559 | Instructions to Authors |
| | 560 | Aphorisms of the Month |
| | 560 | Index to Advertisers |

We've Been Protecting Professional Reputations For More Than 50 Years

With the comprehensive insurance program that includes the flexible coverages and unique services doctors in North Carolina value:

- Local claim and risk management services
- The expertise of specialized defense counsel

Put the unique services of The St. Paul behind your professional reputation. And get the financial strength of the insurance company with more than \$13 billion in assets.

Ask your independent insurance agent about The St. Paul. Or call Cherie Turner in The St. Paul's Charlotte Office at (704) 554-1220 or 1-800-432-6684.



**Yours Deserves The Backing
Of A Multi-Billion Dollar Company**

After all, your reputation depends on it.

The St Paul

St. Paul Fire and Marine Insurance Company

Letters to the Editor

A Thank-You for Article on Physician Assistants

To the Editor:

Thank you for sharing with AAPA a copy of the *North Carolina Medical Journal* and the article on physician assistants (PAs) (1993;54:276-80). Your effort to educate the physician community about PAs is to be commended.

I was intrigued by how closely some of the North Carolina statistics parallel national figures. For example, 59% of the physician assistants in your state describe their current position as consisting of mostly primary care. The national 1993 census shows 57% of all physician assistants practice primary care medicine. Also 32% of the PAs in North Carolina serve in communities with fewer than 50,000 residents; the national figure is 33%.

If you should have any questions in the future about the PA profession, please give me a call. Thank you again for sharing your publication with AAPA.

Nancy Hughes
Public Affairs Administrator
America Academy of Physicians
Assistants
950 North Washington Street
Alexandria, VA 22314

Request to Reprint

To the Editor:

I was pleased to see my article appear in the July issue of the *North Carolina Medical Journal*. I am currently working on a housestaff manual regarding the legal and ethical aspects of patient care. One chapter will deal with ethical dilemmas in the clinical encounter. I would like to incorporate some of the material from my *Journal* article into this chapter. Therefore, I would like written permission from the *North Carolina Medical Journal* to use

this copyrighted material. Please suggest how I should indicate this source in the credits to this chapter.

Louis L. Brunetti, M.D.
Department of Internal medicine
Carolinas Medical Center
Charlotte, NC 28232

Editor's Note:

This material appeared in the NCMJ (1993;54:316). Permission was granted for further use of the material.

In Appreciation of Articles on the City of Medicine

To the Editor:

Thank you very much for inviting Dr. Davis to write the three articles on The City of Medicine and for running them in the *North Carolina Medical Journal* (1993;54:227-30, 262-6, 346-51). We very much appreciate your recognition of our efforts to put medicine's best foot forward in Durham, North Carolina, and the nation. You displayed the three parts of the story beautifully.

H.C. Cranford, Jr.
The City of Medicine, USA
3024 Pickett Road
Durham, NC 27705

Pearl of the Month

- 1 Keep the chewing gum (the good kind) in the drawer where the kids can reach it when you are finished. When the kid gets to the place that he says, "Can I have a piece for my brother?" you've got it made. From then on, both brothers will holler at you down town on Main Street, "Hey, Doc!" What an advertisement!! And they'll do it again and again.
- 2 Learn to love kids — or stay out of Pediatrics and Geriatrics. They return love on a three-for-one basis.

—submitted by
Bruce B. Blackmon, M.D.
Buis Creek, NC 27506

We welcome other "pearls" from our readers. Send them to:
NCMJ, Box 3910, DUMC, Durham, NC 27710.

Guidelines for Letters:

All letters are subject to editing and abridgment. Letters should not exceed 500 words; longer letters are welcome, however, and we will consider them for publication elsewhere in the *Journal*. Letters must be typed, double-spaced, signed, dated, and include the author's phone number and address. Send letters to: NCMJ, Box 3910, DUMC, Durham, NC 27710; or fax them to: 919-286-9219.

Zantac[®] 150 (ranitidine hydrochloride) Tablets

Zantac[®] 300 (ranitidine hydrochloride) Tablets

Zantac[®] (ranitidine hydrochloride) Syrup

The following is a brief summary only. Before prescribing, see complete prescribing information in Zantac[®] product labeling.

INDICATIONS AND USAGE: Zantac[®] is indicated in: 1. Short-term treatment of active duodenal ulcer. 2. Maintenance therapy for duodenal ulcer patients at reduced dosage after healing of acute ulcers. 3. The treatment of pathological hypersecretory conditions (e.g., Zollinger-Ellison syndrome and systemic mastocytosis). 4. Short-term treatment of active, benign gastric ulcer. 5. Treatment of gastroesophageal reflux disease (GERD). 6. Treatment of endoscopically diagnosed erosive esophagitis.

Concomitant antacids should be given as needed for pain relief to patients with active duodenal ulcer, active, benign gastric ulcer, hypersecretory states, GERD, and erosive esophagitis.

CONTRAINDICATIONS: Zantac[®] is contraindicated for patients known to have hypersensitivity to the drug or any of the ingredients.

PRECAUTIONS: General: 1. Symptomatic response to Zantac[®] therapy does not preclude the presence of gastric malignancy.

2. Since Zantac is excreted primarily by the kidney, dosage should be adjusted in patients with impaired renal function (see DOSAGE AND ADMINISTRATION). Caution should be observed in patients with hepatic dysfunction since Zantac is metabolized in the liver.

3. Rare reports suggest that Zantac may precipitate acute porphyric attacks in patients with acute porphyria. Zantac should therefore be avoided in patients with a history of acute porphyria.

Laboratory Tests: False-positive tests for urine protein with Multistix[®] may occur during Zantac therapy, and therefore testing with sulfosalicylic acid is recommended.

Drug Interactions: Although Zantac has been reported to bind weakly to cytochrome P-450 *in vitro*, recommended doses of the drug do not inhibit the action of the cytochrome P-450-linked oxygenase enzymes in the liver. However, there have been isolated reports of drug interactions that suggest that Zantac may affect the bioavailability of certain drugs by some mechanism as yet unidentified (e.g., a pH-dependent effect on absorption or a change in volume of distribution).

Increased or decreased prothrombin times have been reported during concurrent use of ranitidine and warfarin. However, in human pharmacokinetic studies with dosages of ranitidine up to 400 mg per day, no interaction occurred; ranitidine had no effect on warfarin clearance or prothrombin time. The possibility of an interaction with warfarin at dosages of ranitidine higher than 400 mg per day has not been investigated.

Carcinogenesis, Mutagenesis, Impairment of Fertility: There was no indication of tumorigenic or carcinogenic effects in life-span studies in mice and rats at dosages up to 2,000 mg/kg per day.

Ranitidine was not mutagenic in standard bacterial tests (*Salmonella*, *Escherichia coli*) for mutagenicity at concentrations up to the maximum recommended for these assays.

In a dominant lethal assay, a single oral dose of 1,000 mg/kg to male rats was without effect on the outcome of two matings per week for the next 9 weeks.

Pregnancy: Teratogenic Effects: Pregnancy Category B. Reproduction studies have been performed in rats and rabbits at doses up to 160 times the human dose and have revealed no evidence of impaired fertility or harm to the fetus due to Zantac. There are, however, no adequate and well-controlled studies in pregnant women. Because animal reproduction studies are not always predictive of human response, this drug should be used during pregnancy only if clearly needed.

Nursing Mothers: Zantac is secreted in human milk. Caution should be exercised when Zantac is administered to a nursing mother.

Pediatric Use: Safety and effectiveness in children have not been established.

Use in Elderly Patients: Ulcer healing rates in elderly patients (65-82 years of age) were no different from those in younger age-groups. The incidence rates for adverse events and laboratory abnormalities were also not different from those seen in other age-groups.

ADVERSE REACTIONS: The following have been reported as events in clinical trials or in the routine management of patients treated with Zantac[®]. The relationship to Zantac therapy has been unclear in many cases. Headache, sometimes severe, seems to be related to Zantac administration.

Central Nervous System: Rarely, malaise, dizziness, somnolence, insomnia, and vertigo. Rare cases of reversible mental confusion, agitation, depression, and hallucinations have been reported, predominantly in severely ill elderly patients. Rare cases of reversible blurred vision suggestive of a change in accommodation have been reported. Rare reports of reversible involuntary motor disturbances have been reported.

Cardiovascular: As with other H₂-blockers, rare reports of arrhythmias such as tachycardia, bradycardia, atrioventricular block, and premature ventricular beats.

Gastrointestinal: Constipation, diarrhea, nausea/vomiting, abdominal discomfort/pain, and rare reports of pancreatitis.

Hepatic: In normal volunteers, SGPT values were increased to at least twice the pretreatment levels in 6 of 12 subjects receiving 100 mg q.i.d. intravenously for 7 days, and in 4 of 24 subjects receiving 50 mg q.i.d. intravenously for 5 days. There have been occasional reports of hepatitis, hepatocellular or hepatocellular or mixed, with or without jaundice. In such circumstances, ranitidine should be immediately discontinued. These events are usually reversible, but in exceedingly rare circumstances death has occurred.

Musculoskeletal: Rare reports of arthralgias and myalgias.

Hematologic: Blood count changes (leukopenia, granulocytopenia, and thrombocytopenia) have occurred in a few patients. These were usually reversible. Rare cases of agranulocytosis, pancytopenia, sometimes with marrow hypoplasia, and aplastic anemia and exceedingly rare cases of acquired immune hemolytic anemia have been reported.

Endocrine: Controlled studies in animals and man have shown no stimulation of any pituitary hormone by Zantac and no antiandrogenic activity and cimetidine-induced gynecomastia and impotence in hypersecretory patients have resolved when Zantac has been substituted. However, occasional cases of gynecomastia, impotence, and loss of libido have been reported in male patients receiving Zantac, but the incidence did not differ from that in the general population.

Integumentary: Rash, including rare cases suggestive of mild erythema multiforme, and, rarely, alopecia.

Other: Rare cases of hypersensitivity reactions (e.g., bronchospasm, fever, rash, eosinophilia), anaphylaxis, angioneurotic edema, and small increases in serum creatinine.

OVERDOSAGE: There has been limited experience with overdosage. Reported acute ingestions of up to 18 g orally have been associated with transient adverse effects similar to those encountered in normal clinical experience (see ADVERSE REACTIONS). In addition, abnormalities of gait and hypotension have been reported.

When overdosage occurs, the usual measures to remove unabsorbed material from the gastrointestinal tract, clinical monitoring, and supportive therapy should be employed.

Studies in dogs receiving dosages of Zantac[®] in excess of 225 mg/kg per day have shown muscular tremors, vomiting, and rapid respiration. Single oral doses of 1,000 mg/kg in mice and rats were not lethal. Intravenous LD₅₀ values in mice and rats were 77 and 83 mg/kg, respectively.

DOSAGE AND ADMINISTRATION: (See complete prescribing information in Zantac[®] product labeling.)

Dosage Adjustment for Patients With Impaired Renal Function: On the basis of experience with a group of subjects with severely impaired renal function treated with Zantac, the recommended dosage in patients with a creatinine clearance less than 50 mL per minute is 150 mg or 10 mL (2 teaspoonfuls equivalent to 150 mg of ranitidine) every 24 hours.

Should the patient's condition require, the frequency of dosing may be increased to every 12 hours or even further with caution. Hemodialysis reduces the level of circulating ranitidine. Ideally, the dosing schedule should be adjusted so that the timing of a scheduled dose coincides with the end of hemodialysis.

 **Glaxo Pharmaceuticals** 
DIVISION OF GLAXO INC.

Zantac[®] 150 Tablets/Zantac[®] 300 Tablets: Glaxo Pharmaceuticals, Research Triangle Park, NC 27709. Zantac[®] Syrup: Manufactured for Glaxo Pharmaceuticals, Research Triangle Park, NC 27709, by Roxane Laboratories, Inc., Columbus, OH 43216.

© Copyright 1992, Glaxo Inc. All rights reserved.

Z42858

Printed in USA

July 1992
2145

July 1993

One Of A Kind



Zantac[®]
ranitidine HCl/Glaxo 150 mg and
300 mg tablets

**For The Treatment Of
Reflux Disease, Duodenal Ulcer Disease,
And Benign Gastric Ulcer**

Glaxo/ 

Rural Health in North Carolina

Ricky L. Langley, M.D., M.P.H.

Because I spent part of my early childhood on a small farm in Pitt County, I have always enjoyed the outdoors. However, not until my fellowship did I realize that farming was one of the most dangerous occupations in the United States. Since then, one of my research interests has been agricultural hazards. But agricultural work is only one of the risks faced by individuals living in rural North Carolina. From a public health viewpoint, lack of medical resources and inadequate access to available medical services due to barriers such as culture, language, economics, distance and transportation difficulties affect the health of rural citizens.

Contributing to the problems of rural areas is the difficulty many small communities have in attracting physicians. A recent study found that we need about 500 more family physicians in North Carolina, but that fewer physicians are entering primary care.¹⁻³ In addition, areas with more poor and less educated people, as is often the case in rural counties, suffer a disproportionate level of morbidity and mortality.⁴⁻⁶ This special issue of the *Journal* looks at health problems in rural North Caro-

“While most of us
feel a rural lifestyle
is ‘relaxing’ and
should be
associated with
fewer injuries and
illnesses than
urban settings, the
articles that follow
highlight the
fallacy of this
belief.”

lina and offers some suggestions for alleviating these problems.

While most of us feel a rural lifestyle is “relaxing” and should be associated with fewer injuries and illnesses than urban settings, the articles that follow highlight the fallacy of this belief. In rural North Carolina, mortality rates for stroke, coronary heart disease, diabetes mellitus, cirrhosis, cervical cancer, and colorectal cancer are higher than in urban areas. And injuries due to motor vehicles, firearms, fires and drownings are more common. Lifestyle factors may partially account for this, but they do not explain all.

Environmental pollution is a concern to all citizens. Due to delays in

technology transfer, the sparsity of the population, and lack of regulation, rural areas have frequently been used for hazardous waste dumps.⁷ Unless these trends are changed environmental contamination may continue in rural North Carolina. Currently, studies are underway to determine the degree of ground waste contamination from pesticides and the risks to rural residents from consumption of contaminated water.

Although uncommon, zoonotic infections do occur and cause fatalities every year. In fact, North Carolina usually leads the nation in the cases of Rocky Mountain Spotted Fever reported annually. As urbanites travel to rural areas, they increase their chances of developing an unfamiliar infection. Physicians should always take a good travel history when examining a patient with unusual symptoms. Careful use of insect repellents, good personal hygiene, and consumption of thoroughly cooked food and purified water will prevent many of these infections.

A growing concern among physicians in rural counties is the increasing number of AIDS cases they are seeing; many HIV-infected individuals return home and turn to the local physician for care. Some small town physicians feel uneasy about treating them. As the number of cases grows, we must find a way to help these physicians treat their patients locally.

Throughout the state people try non-traditional methods to treat their ailments. Root and folk medicine have

From Duke University Medical Center, Division of Occupational and Environmental Medicine, Department of Community and Family Medicine, Durham, NC 27710.

been long used in North Carolina and their use may be increasing, as recent legislative activities demonstrate. The federal government now has an office of Alternative Medicine to evaluate therapies considered out of the mainstream of traditional medicine. The article by Kelley et al. defines different forms of non-traditional medicine practiced in this state.

While the problems of rural North Carolina are numerous, efforts to educate citizens through the NC Cooperative Extension Service, the NC Public Health Agency and the UNC Center for Health Promotion and Disease Prevention are increasing. There is evidence that medical schools are portraying primary care in a more positive light. Additionally, the NC Office of Rural

Health and Resource Development, the NC Area Health Education Centers System, and the Kate B. Reynolds Community Practitioner Program are addressing the concerns of citizens and practitioners in rural North Carolina.

I hope that this issue of the *Journal* will stimulate additional research into the health problems of rural North Carolina and ultimately improve the health of all our citizens. □

References

- 1 Report of the NC Academy of Family Physicians' Health Care Task Force. Who Will Take Care of Our People? March 1991.
- 2 Geiger HJ. Why don't medical students choose primary care? *Am J Public Health* 1993;83:315-6.

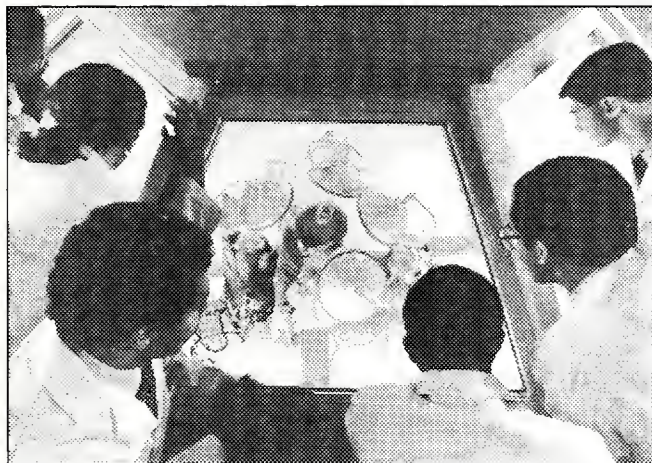
- 3 Petersdorf RG. Commentary: Primary care - medical students' unpopular choice. *Am J Public Health* 1993;83:328-30.
- 4 Adler NE, Boyce WT, Chesney MA, et al. Socioeconomic inequalities in health. *JAMA* 1993;269:3140-5.
- 5 Pappas G, Queen S, Hadden W, Fisher G. The increasing disparity in mortality

between socioeconomic groups in the United States, 1960 and 1986. *N Eng J Med* 1993;329:103-9.

- 6 Nelson ND. Socioeconomic states and childhood mortality in North Carolina. *Am J Public Health* 1992;82:1131-2.

- 7 Hearn W. Toxic toll. *Am Med News* 1993;2/15:27-9.

AN ARMY SCHOLARSHIP COULD HELP YOU THROUGH MEDICAL SCHOOL



The U.S. Army Health Professions Scholarship Program offers a unique opportunity for financial support to medical or osteopathy students. Financial support includes tuition, books, and other expenses required in a particular course.

For information concerning eligibility, pay, service obligation and application procedure, contact the Army Medical Department Personnel Counselor: Call Collect 804-771-2354

ARMY MEDICINE. BE ALL YOU CAN BE.®

A Report from the Community Practitioner Program

E. Harvey Estes, Jr., M.D.

In the fall of 1989, the Kate B. Reynolds Charitable Trust granted funds to allow the North Carolina Medical Society Foundation to assist medically underserved communities in North Carolina. The Kate B. Reynolds Community Practitioner Program established by the grant was launched early in 1990 to help communities attract and retain needed medical practitioners. I am the director of the program.

Since its beginning, the Community Practitioner Program has worked with about 40 North Carolina communities and individual practitioners. Each of these communities/individuals has a set of special circumstances and problems, and each could be the subject of a separate report; but space, respect for privacy, and the objectives of this special issue of the *Journal* preclude such an endeavor. Instead, I will attempt to distill the lessons learned into an overall report on the status of medical practice and practitioners in rural North Carolina.

I must begin with a strong statement about the debt we all owe to a remarkable group of men and women who persist in serving as medical practitioners in the more sparsely settled areas of our state. They serve there despite smaller incomes, less time with family, and less control over their lives, and they make many other sacrifices that their colleagues in other communities and in other specialties do not.

These rural physicians are true medical heroes, and their story deserves a much wider audience than it has received. Perhaps this report will begin this process.

The Problem

We have recognized the shortage of physicians in rural communities since the mid-1960s, largely because of complaints voiced to state and national legislators by citizens living in those areas. The problem was at first attributed to an absolute shortage of physicians, and there was a national effort to increase the size of medical school classes and to create new medical schools. Midlevel practitioners (physician assistants and nurse practitioners) were trained to extend the work of physicians. The new specialty of family medicine was created to replace the general practitioners of the past. Medical education was extended into smaller communities through the initiation of the Area Health Education Centers (AHEC) program.

North Carolina participated in all of these initiatives, and has been a leader in most of them. The efforts had a beneficial effect; the number and distribution of physicians in rural North Carolina improved steadily from 1975 to 1985, and at a faster rate than in other states. However, in spite of continuing efforts by the North Carolina Office of Rural Health and Resource Development (ORHRD) and the North Carolina

“...rural physicians are true medical heroes, and their story deserves a much wider audience than it has received. Perhaps this report will begin this process.”

AHEC program, our state has seen a downturn in numbers of physicians in several areas since 1985.

In addition to the decrease in numbers of physicians practicing in isolated areas, there has been another ominous development: midsized communities with good community hospitals now report that they cannot attract new primary care physicians. The shortage has spread from a shortage of generalist physicians in rural areas and small towns to a shortage of family physicians, general internists, and general pediatricians in small and midsized communities. In the late 1960s and early 1970s, we had hoped that the new primary care option of family medicine would attract large numbers of medical students, but in the early 1990s we find that the original surge of student interest has leveled and that interest in all primary care specialties

From the North Carolina Medical Society Foundation, Inc., P.O. Box 27167, Raleigh, NC 27611.

(including general internal medicine and pediatrics) has declined.

These trends are seen throughout the United States. In fact, there is some evidence that North Carolina has fared better than most, and other states look with great envy at our ORHRD and our AHEC system. But this is little consolation to the North Carolina family physician who is preparing to retire and is unable to obtain a replacement, or to the former four-person pediatric group now reduced to two tired members and unable to attract new partners.

Physicians see the problem as one of a need for new associates, for other physicians to share responsibility and permit a more tolerable on-call schedule. People in the community see it as a lack of access to medical care. The problem is not evenly spread across all members of the community. Younger persons with good incomes, good transportation, and control over their time and lives can travel to get medical care in a medical center; the problem is much more complex for others. An 80-year-old widow, who drives her own car to the grocery and to the hairdresser in her small town, is fearful of traffic in the larger community and unable to negotiate the complex medical environment she encounters there. The Medicaid-eligible, single mother with three small children and no automobile faces similar problems. So does a minimum-wage factory worker who cannot afford to take the day off, but who cannot get in and out of the nearest medical complex in less time. Those who argue that the answer to rural health care is a good transportation system need to look again!

In summary, there is a shortage of primary care providers, it is growing in intensity, and it is affecting cities of larger size. The impact is more severe upon citizens who are less able to cope because of age, infirmity, or low income. North Carolina shares the problem with all other states, and has some outstanding programs in place to combat it. The fact that the problem has grown worse in spite of these programs attests to the severity of the systemic problems within the U.S. health care system.

“... there is a shortage of primary care providers, it is growing in intensity ...”

The Financial Cause of the Shortage

Let's look in more detail at the practice of a primary care doctor in a rural or small town setting, realizing that primary care practices in larger towns and cities face the same problems in less intense form. Most primary care physicians have found their income declining over the past five to ten years. A typical practice may see the same or a greater number of patients per week, but the office operating expenses have risen rapidly, decreasing net income. Practices have had to increase personnel to deal with the intrusion of new rules and regulations, the appearance of multiple payers (each with a different set of guidelines and rules), and the need to respond to multiple inquiries from payers, patients, and others. The new personnel require added space and equipment, all adding to overall cost without increasing practice income.

The public may perceive the physician as a highly paid individual, but the primary care practitioner is having financial difficulties. These physicians still earn more than the average citizen but, in the small communities of our state, the spread in incomes between average citizen and physician is not nearly as large as most would predict. In a time when the average physician income is well over \$100,000 a year, the small town generalist physician works very long and hard hours to make \$70,000 to \$80,000 or, in many areas, \$50,000 to \$60,000. Young physicians finishing residency and considering joining the practice often expect a higher salary in the first year than the potential employer has achieved after several decades of practice. The eco-

nomic problem faced by established, older, small-town generalists is not that they have difficulty meeting the expenses of living and operating a household, but that they cannot attract partners! New practitioners, of course, have their own problems. Most are burdened with educational debt, the size of which often means that they cannot borrow money to buy a house or to attain the level of comfort and life style that they had expected.

The public is unaware that the payment allocated by Medicare for a primary care visit is less than the cost of providing the service. An office that sees a relatively small percentage of such patients can tolerate a small loss on each Medicare patient visit, but when the practice consists mostly of such patients it is very difficult to make ends meet! In the past, the payment for Medicaid patients was even lower, but recently North Carolina has increased its Medicaid payments so that they equal or slightly exceed Medicare.

Some practices have incomes so small that they cannot meet expenses in spite of a heavy load of patients. These usually serve areas with older populations and high levels of poverty. And some physicians are poor managers who fail to adopt prudent business practices and leave much of their potential income uncollected. Such practices can be criticized for their poor business skills, but we must recognize that good practice management requires a lot of time and most physicians are neither trained nor interested in this activity.

The Effect on Practitioners

Faced with declining incomes, and with the very survival of the practice threatened, physicians can make one of several choices. They can move to a more affluent neighborhood where a younger population may have good commercial insurance and less demanding needs. They can stop seeing those patients who pay less than what it costs to deliver their care by limiting the number of Medicare and Medicaid beneficiaries they will accept. They can aban-

don private practice and join a medical enterprise that provides good income without administrative responsibility (such as an urgent care center or an emergency room). Young physicians who have worked very long hours for \$60,000 per year can take a position in a hospital emergency room at a salary twice their previous income and get a defined schedule that provides several days off each week. The tragedy is that they may then see some of the same patients that they saw in their office, but at about twice the cost.

The central economic problems of rural primary care practice divert those who start their medical careers intending to serve as rural practitioners. Medical students have always been more heavily recruited by their medical school mentors into research careers than into community practice, but the recent perception of rural practitioners as harried, overworked, and professionally isolated is multiplied in the minds of students who face debts of \$50,000 to \$100,000 and find the starting salary in primary care is one fourth that of a specialty career.

Students who persist in their choice of a primary care career face other problems if they are attracted to rural areas. Most of these locations offer few opportunities to a career-oriented spouse, and most provide poor educational and recreational resources for a young family. The financial resources need to solve these problems are absent in most rural communities.

It is remarkable that we still have any young doctors who persist in their path of serving rural communities as physicians. They deserve our respect and gratitude but, above all, they deserve a better share of the medical payment distribution than they have received in the past.

Are There Solutions?

1. Improved compensation. An even-handed payment system would reduce the inequities described above. This will require that some who currently receive high levels of payment receive less. There are signs that the Clinton

administration may propose such payment reforms which, if accomplished, will do more than any other single intervention to correct the problem. Such reform was projected as a part of the Resource Based Relative Value Scale system passed into law several years ago. This system did not achieve its projected levels improved income, largely because of restraints imposed by the administrators of the system who feared increased costs as a result of increased volume of care.

2. Improved perceptions. Another contribution would come from a change in the climate of medical education to portray primary care careers more favorably. There is evidence of such change in all four medical schools in our state although it will not be easy since most current medical faculty have no experience in community practice. Nevertheless, the recent attention to the problem by senior leadership is a step in correcting the perception of faculty that community primary care is less desirable than a career as a researcher or a consulting specialist (see Curtis P, Pathman D. The return of the Generalist Physician. *NC Med J* 1993; 54: 469-474).

3. New Programs. The Community Practitioner Program seeks solutions to the practical problems of medical practice in a rural community. It provides financial assistance to physicians with heavy debt burdens. It provides direct grants that enable physicians to disengage themselves from another state and relocate to underserved areas of North Carolina. It provides management consultation to small practices which are having difficulty in meeting financial goals, and has studied the effect of cost-based payment systems, such as that provided under the Rural Health Clinic Act.

The Community Practitioner Program has obtained grant support from the Kate B. Reynolds Health Care Trust to establish a locum tenens program in cooperation with the Mountain Area Health Education Center in Asheville and the East Carolina University Family Medicine Residency in Greenville.

Supported by the grant, these two family medicine residency programs have added a faculty member, enabling them each to provide about 50 weeks of relief coverage for isolated physicians in their area. Physicians have used the relief time for vacations with their family, for continuing medical education, and for coverage during illness. The program helps prevent the burnout which often precedes departure from small community practices.

The Community Practitioner Program, in partnership with the ORHRD, the AHEC Program, the Kate B. Reynolds Health Care Trust, and the Duke Endowment, hopes to provide solutions for those areas of the state that have been underserved over the past several decades. Most of these areas have lacked the leadership to analyze the medical needs of the area and to formulate a plan of action. Our program becomes involved with local citizens and provides them with planning expertise and grant writing assistance, followed by intensive assistance in implementing plans. This is a slow and labor-intensive effort, but the initial project under the program is moving ahead smoothly and others are in the early stages of planning.

Conclusions

Until real relief in the form of payment reform is achieved, we must realize the fragility of the primary care system in our state—especially that which serves the poor, the elderly, and isolated rural populations of our state. We owe the physicians serving in these areas our respect, our admiration, and our thanks! They continue to serve their patients in spite of the difficulties because enormous rewards accompany such endeavors. Most physicians forced out of rural practices by burnout, by financial problems, or by family pressures, grieve at the personal loss they feel. If financial barriers can be removed, and more equity introduced into the education and support of these practices, they can survive and prosper again! □

Our Roots Run Deep.



North Carolina physicians created Medical Mutual to protect the State's health care providers. For 17 years, we've kept the professional liability market open and stable – and we've built a strong company to weather the inevitable storms ahead.

Medical Mutual. We'll be there when you need us.



Medical Mutual Insurance Company of North Carolina

919.872.7117 800.662.7917

Offices in Raleigh, Greenville and Charlotte.

A PRIVATE OCEANFRONT RETREAT TO CALL YOUR OWN...DEWEES ISLAND MINUTES FROM CHARLESTON, SC



Located only a nine-minute ferry ride north of the Isle of Palms, Dewees Island offers oceanfront and oceanview homesites. Here you'll find one of South Carolina's most breathtaking and expansive beaches, with a development plan dedicated to preserving the island's natural environment.

A convenient property owner's ferry service links the island to a private marina on the Isle of Palms, placing it only minutes from downtown Charleston and the Charleston International Airport.

Environmental covenants limit the number of homes that may be built to 150, thus ensuring the 1,206-acre island will forever be uncrowded...and natural.

Come explore one of the South's last oceanfront islands available for development... you'll find unspoiled beauty at a

surprisingly affordable price.

Oceanview homesites from \$150,000, Oceanfront homesites from \$315,000.

For more information, call 1-800-444-7352 or 886-8783.

*Pat Ross, Broker-In-Charge
Dewees Island Real Estate, Inc.*

DEWEES ISLAND



A PRIVATE, OCEANFRONT
ISLAND RETREAT
DEDICATED TO
ENVIRONMENTAL PRESERVATION

Obtain the property report required by federal law and read it before signing anything. No federal agency has judged the merits or value, if any, of this property.

Extending and Enhancing Health Care through the North Carolina Cooperative Extension Service

Barbara Garland, M.P.H., Ph.D., and Steve Derthick, M.P.H.

Health care is a major concern of rural families. There is a critical shortage of health professionals and facilities in rural areas, the high cost of health care threatens family financial stability, and agriculture has the country's highest occupation-related mortality rate. The Cooperative Extension Service (CES) is a cost-effective and often neglected resource for meeting rural health needs.¹ CES is a trusted source of research-based information for many rural residents and has, since its inception, provided health education to both rural farm and non-farm populations. The North Carolina CES has recently initiated new, collaborative programs to help rural families and communities address health issues.²

The North Carolina Cooperative Extension Service

The CES of North Carolina State University in Raleigh and North Carolina A&T State University in Greensboro is part of the nationwide Cooperative Extension Service sponsored by the United States Department of Agricul-

ture (USDA). It is a land-grant university-based system established in 1914 to: 1) provide technical assistance; 2) disseminate research-based information on agriculture and family life; and 3) support the development of the nations' youth through the 4-H program. The Cooperative Extension Service operates in all 3,150 counties across the United States. It is an educationally focused institution funded about equally by federal, state, and local governments. Programs vary by state and by local areas within states, depending on the interests and priorities of the state, community and individual clients. Over 15,000 national, state, regional, and local extension staff work with over 1,000,000 volunteers in designing and implementing educational programs.³

The Cooperative Extension Service is credited with rescuing rural America from devastation in the early part of this century.⁴ CES has been instrumental in providing the abundant and safe food supply available nationwide today, and it has always emphasized health-related needs as can be seen from early programs on home gardening, food preservation and nutrition, home maintenance, clothing and laundering.⁵ Child care and development have been major concerns, and more recently considerable attention has been focused on the well-being of the elderly.

CES personnel see firsthand the problems that result from a lack of available and accessible health care (including health promotion and disease and injury prevention programs) and the barriers - economic, cultural, or geographic - to overcoming them.

New Extension Health Programming

In early 1993, the Extension Service of the USDA, recognizing the need for a concerted effort to educate rural families to better meet their health care needs, made rural health one of eight national priority issues for the next five years. The objectives of the National Extension Initiative, *Decisions For Health*, are to assist families and individuals in 1) making better informed decisions about their personal health behaviors, 2) making more appropriate and timely use of the health care system, and 3) joining in community decision-making on health and health-related issues including infrastructure needs.⁶ These goals are in concert with the national health objectives for the nation.^{7,8}

Remote and underserved communities often lack professional personnel and resources to help them address health-related needs. The CES has the professionals, the community volun-

Dr. Garland is Rural Health Program Coordinator and Mr. Derthick is Health Promotion Specialist, North Carolina State University, Raleigh.

teers, and the effective infrastructure needed to develop health programming in every rural county. The Southern Rural Development Center recognized this and convened a Rural Health Task Force to examine the CES role in rural health and to develop resource materials to support Extension health programming in the southeast. The Task Force has produced two monographs^{8,9} and has scheduled a conference on "Creating Partnerships in Rural Health" for November, 1993, co-sponsored by the Office of Rural Health Policy and the US Public Health Service, Department of Health and Human Services.

Within the North Carolina CES, a long-standing Farm Safety Program, led by an Agricultural Safety Specialist and staffed by a public health educator, and a more recently established Rural Health Program, directed by a doctoral level epidemiologist, provide health promotion and disease and injury prevention programs for rural residents. In addition, a Family Resource Management Program educates individuals and families about informed choices regarding health-related expenditures such as the purchase of supplementary health insurance. The program's attorney helps educate North Carolinians about the advantages of having a living will and of appointing a health care agent before the need arises. County Extension Agents are broadening the scope of their programs to directly address a variety of rural health needs, outlined below. Many of these health program components were found to be effective in Georgia's Extension health program.¹⁰

Documenting Health-Related Needs.

Community health assessments determine the segment of the population at highest risk for death and disability, the characteristics of individuals affected, and their location within the county. The state or county health department often has a formal community assessment system that is based primarily on vital statistics. Extension Agents enhance this information through additional interviews with health and human service providers and community members.

Providing health and health-related information to specific groups. Extension Agents conduct programs on stress management, nutrition, exercise and fitness, weight reduction, and injury prevention. Agents present programs on health care and health insurance decision-making for elders in cooperation with the Department of Insurance Seniors' Health Insurance Information Program and the Division of Medical Assistance. New programs under development will help aging adults maximize their independence. Agents do not undertake activities which require medical expertise or related training.

Collaborating with Health Professionals. Extension Agents increase their health promotion capacity and credibility by collaborating with local health professionals. Extension's health programs draw much of their content and support from state and local health agencies and groups such as the Duke University Comprehensive Cancer Center's Cancer Information System Outreach Program. After intensive training, County Extension Agents conduct educational sessions to educate community women about the importance of early breast cancer detection and the value of mammography, especially for post-menopausal women. CES expertise in accessing different segments of the community, recruiting volunteers and facilitating programs contributes to this and other health education efforts.

Forming or Joining Health Coalitions.

Extension Agents increase their ability to promote health by forming or joining county or community coalitions of health-related professionals. These coalitions identify the concerns of and encourage participation by low income and minority populations that generally have the greatest health needs; they identify unmet health needs and help pool local resources to meet those needs. Extension-Health Agency collaboration often forms the nucleus of a community-wide group which can be broadened to include medical personnel, social workers, teachers, clergy and civic leaders.

The Community Health Advocacy Program

The Community Health Advocacy Program (CHAP) was developed by the Office of Health Services Research and Development at East Carolina University. It is a volunteer lay-advisor, community-based approach to delivering health information. CHAP is similar to traditional Extension program models using volunteer coordinators and, with support provided by the Kate B. Reynolds Trust, has been adopted and adapted as part of the NCCES Rural Health Program. CHAP addresses a wide range of health needs ranging from maternal and child health to geriatric and environmental health. The program emphasizes serving individuals who lack necessary information and access to health care and other community resources. The basic strategy is to form local coalitions that train natural leaders from diverse socioeconomic backgrounds to disseminate information on health and health resources in their communities.

Although implementation of CHAP through NCCES is in the early stages, over one-third of NC counties have participated in Coordinator training for local CHAP coalition building and advocate training. Several counties have made considerable progress toward a network of active volunteer health advocates in rural communities. Examples include:

Bladen County. Under the guidance of the County Home Economics Agent, Bladen County's CHAP program graduated its first Advocates, conducted a continuing education course in cardiopulmonary resuscitation (CPR), and held a community meeting on "AIDS: Trading Fears for Facts." The feasibility of joining forces with the local hospital for a county-wide "Neighborhood Health Watch" is being explored.

Gaston County. Two groups of CHAP Advocates have completed training in two minority communities. Continuing education has included sessions on stress management, care of the elderly and training for another NCCES program entitled the "Volunteer Infor-

mation Provider Program" (VIP). The VIP program, also funded by the Kate B. Reynolds Trust, provides information to family members on effective techniques of caring for the elderly and on the resources available to them.

Macon County. The Extension Home Economist, the Health Department Health Educator, and a local CHAP Community Coordinator with a background in nursing have formed a CHAP subcommittee within an existing Community Development Club in Otto, NC. Sixteen Advocates have graduated and participated in community health projects including health department staffed community screenings for diabetes, breast cancer and hypertension. A source was identified for mammograms at an affordable fee, and 50 women from Otto were screened for breast cancer. A list of physicians who accept Medicaid and Costwise was made available to the community. There is an exercise program for community members. Other Macon County communities are currently organizing and a grant has been obtained to undertake CHAP at work sites in Macon County.

Montgomery County. The Montgomery County Extension Home Economist is establishing a Hispanic CHAP partially supported by a \$1,000 grant from the NCCES Agricultural Health Promotion System program (funded by the National Institute for Occupational Safety and Health). This program will serve Hispanic families working in agriculture and local industries.

CHAP Coordinators and the CHAP Steering Committee obtained funds from local industry, the Board of Education, a church, and the Health Fair Committee to purchase the manuals used in CHAP advocate training. Four groups of Advocates have graduated and serve three-fourths of the county's land area and Camp LeJeune Marine Base in Jacksonville. Continuing education has included CPR and Hospice training.

Orange County. CHAP has been incorporated into a multi-county health department program recently funded by the Kellogg Foundation. CHAP will

serve as the outreach arm of the larger public health project.

Appalachian Leadership Initiative on Cancer

The NCCES Rural Health Program has begun an Appalachian Leadership Initiative on Cancer (ALIC) in cooperation with the National Outreach Initiative Branch of the National Cancer Institute. The project serves the Appalachian regions of North Carolina, South Carolina, and Georgia where residents face economic, cultural and geographic barriers to health services.

The Southern ALIC Consortium includes the Cooperative Extension Services of North Carolina State University, Clemson, and the University of Georgia; the Department of Biostatistics and Epidemiology at the University of South Carolina; the Institute for Community and Area Development at the University of Georgia; and the Research Department of the Greenville Hospital System in Greenville, S.C. The consortium is conducting a randomized, controlled, community trial of whether community coalitions can develop and disseminate community-level cancer control programs. This effort is further supported by a coalition of State Health Departments (Cancer Control, Project Assist and Health Promotion programs), the American Cancer Society, and the regional Cancer Information Service at Duke University.

The specific objectives of the National ALIC are:

- to create a network of cancer control community coalitions throughout Appalachia,
- to develop, disseminate, and support effective cancer control intervention programs and strategies in Appalachian communities,
- to mobilize community lay and professional leaders to develop and support cancer control community coalitions and outreach activities,
- to stimulate cancer control data collection and research efforts in Appalachia, and

- to evaluate the effectiveness of this initiative.

Agricultural Safety and Health Programs

Several health programs specifically focus on the agricultural community because of the high rates of illness and injury among agricultural workers (see the article by Bernhardt and Langley in this issue of the *Journal*). The U.S. agricultural occupational death rate, four times that of all other industries, is due to disabling illnesses (such as stroke, diabetes, heart disease, arthritis, respiratory ailments, cancer, stress and related mental disorders including depression) and work-related injuries (associated with agricultural machinery, motor vehicles, guns, falls, improper lifting) that are common in agriculture.¹¹ These occupational illnesses and injuries are compounded by lack of access to health-related information and services in rural areas. Special populations, such as migrant and seasonal farmworkers, face added language and cultural barriers to health-related information, resources, and services.¹²

The Agromedicine Program is a collaborative effort of the North Carolina State University College of Agricultural and Life Sciences and the East Carolina University School of Medicine. It is based on a South Carolina model and seeks to increase diagnosis and referral of agriculturally related illnesses and injuries by linking county extension agents with rural physicians.

Another Extension program is the Agricultural Health Promotion System (AHPS) of the NCCES Farm Safety Program. It is funded by the National Institute for Occupational Safety and Health. North Carolina State University faculty, in consultation with medical school faculty, are developing agricultural safety and health curricula for use in schools of agriculture and medicine. Working through key agricultural community members, AHPS promotes health-related knowledge, attitudes, and behaviors. For example, hundreds of North Carolina swine producers and workers have attended AHPS presenta-

tions on prevention and early detection of respiratory illness due to airborne dust and gases inside livestock buildings. Other topics include the maintenance and operation of hazardous farm machinery, prevention of pesticide exposure, and safe practices and facilities for handling large animals. One component of AHPS focuses on developing lay health advisor volunteers to provide information concerning health, safety, and availability of local services. Health practitioners provide technical information and conduct medical screenings during AHPS-sponsored county events.

NCCES, in collaboration with the Easter Seal Society of North Carolina, has applied to the USDA to establish an AgrAbility Partnership to provide information, support and referral for agricultural workers and family members who are affected by disabilities.

Implications

The CES has enhanced and expanded its traditional programs to help rural North Carolina residents address their health needs. Extension personnel use their educational and problem-solving

skills for health promotion, disease and injury prevention. The success of these health and safety efforts is largely due to the skills and commitment of county Extension Agents and volunteers. Collaboration between County Extension Agents and health professionals strengthens each agency's ability to disseminate appropriate information and to involve rural residents in making decisions that affect their health. Those wishing to learn more about Extension health and safety programming should contact B. Garland at 919-515-2770 or S. Derthick at 919-515-6784. □

References

- 1 Halpert BP, Sharp TS. Utilizing cooperative extension services to meet rural health needs. *J Rural Health* 1991;7.
- 2 James PA, Langley RL. Using the cooperative extension service in agricultural health education. *Occup Med* 1991.
- 3 Ahmad A, Forest LB. Community Leadership Participation in the Extension Programme Decision-making Process. *Pertanika* 1989;12.
- 4 Warner PD, Christenson JA. The cooperative extension service: a national assessment. In: *Rural Studies Series of the Rural Sociological Society*. Boulder and London: Westview Press, 1984.
- 5 Rasmussen WD. Taking the university to the people. Ames, IA: Iowa State University Press, 1989.
- 6 Extension Service - United States Department of Agriculture. Decisions for health: the national initiative, 1993.
- 7 US Department of Health and Human Services, Public Health Service. Healthy People 2000: national promotion and disease prevention objectives, full report with commentary. DHHS Publication No. (PHS)991-50212, Superintendent of Documents, US Government Printing Office, 1991.
- 8 Southern Rural Development Center. Rural health services. SRDC No. 156, March 1992.
- 9 Southern Rural Development Center. Rural health services. SRDC No. 159, June 1992.
- 10 Jenkins S. Community wellness: a group empowerment model for rural America. *J Health Care Poor Underserved* 1991;1.
- 11 National Council for Agricultural Safety and Health. Agriculture at risk: a report to the nation, 1989.
- 12 Migrant Task Force, North Carolina Farmworker Council. The status of migrant health in North Carolina. August, 1991.



"I'm practicing medicine the way I think it should be practiced, sans the paperwork and administrative overload."

Owen Brodie, MD, joined CompHealth's locum tenens medical staff in 1989, after 21 years in private practice. Since

then he's worked in temporary assignments in state facilities, filled in for attending physicians, covered for private practitioners across the country.

A pilot. A historian. A board-certified psychiatrist. Southern to a fault. Owen Brodie knows...

It's a great way to practice medicine

CompHealth
LOCUM TENENS

1-800-453-3030

Salt Lake City ■ Atlanta ■ Grand Rapids, Mich.

Caring For People in Eastern North Carolina

James G. Jones, M.D.

Any form of universally accessible medical care, such as that proposed in the impending reform of health care delivery, will be difficult to implement in eastern North Carolina because of the severe shortage of primary care physicians there. Although we have an under-representation of all types of primary care physicians, it is especially critical that we have a sufficient number of family practitioners to meet the needs of the people. The breadth of training and practice, from obstetrics to geriatrics, make family practitioners well suited to provide health care in the small communities found in eastern North Carolina.

The 1991 report of the North Carolina Academy of Family Physicians' Health Care Manpower Task Force concludes that "there is a severe shortage of family physicians in North Carolina. Many of our citizens are denied access to basic health care."¹ The study estimates that it would take between 476 and 542 family physicians to meet the current needs of the state. Nowhere is the shortage more evident than in the eastern region of our state—an area with a glaring disproportion of the state's 44 federally designated health manpower shortage areas.

Initiatives at ECU

It is possible that current debate will lead to health care reform and a need for an expanded number of qualified primary care providers. Increasing the number of family practitioners is but one of several strategies that must be carefully evaluated. The Department of Family Medicine at the East Carolina University School of Medicine is attempting to meet the need for more family physicians in a variety of ways.

Since its inception, a major mission of the Department has been the preparation and placement of residency-trained family physicians in rural North Carolina. The department has 30 faculty members, a 36-position residency program, and has graduated more than 150 residents. According to data compiled by the North Carolina Area Health Education Centers (AHEC) office, our program heads the state's nine family practice residency programs in placing graduates in North Carolina practices. Sixty-one percent of our graduates establish practice in North Carolina, the majority in towns of 25,000 or less and 47% in towns of under 10,000.² The predilection of our graduates for small towns is significant in matching supply to need. Our residency program purposefully selects students who express interest in practicing in the eastern region.

With grant support from the North Carolina Medical Society Foundation, we are developing a program to help

retain family practitioners in remote communities. This program, which we call *Partners*, allows faculty members to serve as locum tenens substitutes for rural practitioners for up to four weeks each year. These practitioners spend their time away from the practice updating knowledge and skills or taking well-earned vacation time. The program helps alleviate the physician's sense of isolation and of being overwhelmed by the demands of practice in the remote towns of our region.

In parallel with the *Partners* program, we are beginning an individualized continuing medical education project funded by the Kate B. Reynolds Charitable Trust. It will identify the educational needs of practitioners in rural areas and help determine the best way to meet those needs. Depending on a physician's practice characteristics, individual learning style, and ability to take time away from the practice, CME can be obtained by a tailored minifellowship or tutorial at the University Medical Center, at regional or local seminars or workshops, or by guided self-study using a computer or other methods. The project was designed to complement the *Partners* program by using University Medical Center resources to help overcome problems of CME in rural practice.

We are developing an outreach program in which one of our faculty members will bring procedural skills to rural practitioners by teaching physicians and staff members office proce-

Berbecker Professor, Chairman of the Department of Family Medicine, and Associate Dean for Rural Practice, East Carolina University School of Medicine, Greenville, NC 27858.

"If we are to make a lasting change in the ratio of rural primary care to urban specialty practitioners, we have to change the economic disincentive. Perhaps this is the heart of the problem."

dures using patients scheduled by the local physician. These skills will help family physicians increase the breadth of their practice to the benefit of physicians and patients, and enhance opportunities for increasing practice income.

Preparing Residents and Students

We are particularly pleased to be expanding our residency program. We recently received accreditation to use two rural sites for training residents. This new "1+2" rural residency program will place second- and third-year residents in Williamston and Ahoskie; first-year training will take place in the parent program at the University Medical Center in Greenville. We anticipate that training in these small hospitals will enable physicians to practice more confidently in rural areas without the immediate availability of the "high tech" resources of larger medical centers. We are the fifth program in the country given permission by the Residency Review Commission to develop such a program. We believe it represents our best opportunity to place family practitioners in remote areas.

In our experience a large number of medical students like the lifestyle of rural North Carolina. They value the intensity of relationships they can form with the entire community, and they

find involvement in church, schools, and local politics appealing. They also appreciate the less hurried pace and freedom from traffic jams and city pollution. We hope that admissions committees will seek out students from rural backgrounds, and others who prefer a rural lifestyle, in adequate numbers to assure a steady supply of primary care physicians in the future.

What Can We Do?

Of course, there are some compelling reasons why many students and residents rule out rural practice. Our medical students are encumbered with the largest loan indebtedness of any generation of students, and the reimbursement system discriminates against rural practice. These factors often push

students into more lucrative practices in the city. If we are to make a lasting change in the ratio of rural primary care to urban specialty practitioners, we have to change the economic disincentive. Perhaps this is the heart of the problem. Communities can make rural locations and practices more attractive to young physicians through aggressive recruitment plans that include assistance with student loans, provision of office space at no charge in the early years, improvements in the quality of schools, employment opportunities for the physician's spouse, and help in ensuring a meaningful role in the community. Communities that present a united front benefit in many other ways from working together. If we are to provide the best health care for the people of North Carolina, we must all work together on a wide variety of strategies.



References

- 1 North Carolina Academy of Family Physician's Health Care Manpower Task Force. Who will take care of our people? March, 1991.
- 2 AHEC Report. Medical education and physician distribution in North Carolina. 1993

ACCUSCRIBE, INC.

5 North Lafayette Street

P.O. Box 1511

Shelby, North Carolina 28151-1511

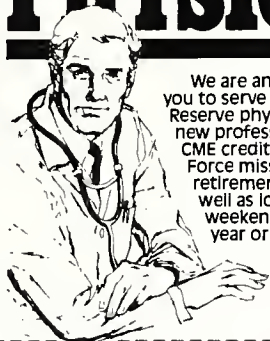
**MEDICAL TRANSCRIPTION FOR PHYSICIANS'
OFFICES AND HOSPITALS**

WE OFFER:

- ** Professional quality transcription on your letterhead or forms that meet your specifications**
- ** Lanier Telestaffing capability**
- ** Dictation may also be done over toll-free telephone line via Digital Analog Communication System**
- ** Direct-line printing capability**
- ** Service available 24 hours a day**
- ** Confidentiality of records guaranteed**

**FOR MORE INFORMATION CALL:
(704) 480-6854**

PHYSICIANS



We are announcing opportunities for you to serve your country as an Air Force Reserve physician/officer. You can make new professional associations, obtain CME credit and help support the Air Force mission. For those who qualify, retirement credit can be obtained as well as low cost life insurance. One weekend a month plus two weeks a year or less can bring you pride and satisfaction in serving your country.

CALL:

Or Fill Out Coupon and Mail Today!
To: MGST Linda Landrum
2400 RRMS/RSH-1
Bldg 1000, Room 112
Charleston AFB, SC 29404-6004

Name _____
Address _____
City _____ State _____ Zip _____
Phone _____ Prior Service? Yes ☐ No ☐
Medical Specialty _____ Date of Birth _____

AIR FORCE RESERVE

25-301-0009

A GREAT WAY TO SERVE

It's your choice:

**4 hours at 4 auto dealers
haggling over \$400**

or

**4 hours on the links with
your favorite foursome.**

That's right. While you're attending to more pressing issues, Auto Brokers International can locate the best deal on the car of your choice. We shop, we haggle, we negotiate. **And, if we can't save you time and money, we don't get paid. Period.**

787-1098

Long distance
1-800-645-6413

**AUTO BROKERS
INTERNATIONAL, INC.**

3301 Woman's Club Drive, Suite 127
Raleigh, North Carolina 27612
(919) 787-1098 FAX 787-1098



Visit our booth at the show

WOMBLE CARLYLE SANDRIDGE & RICE

HEALTH CARE ENVIRONMENTAL MANAGEMENT GROUP

R. Howard Grubbs

Karen Estelle Carey

Lori P. Hinnant

C. Elizabeth O'Keeffe

Concentrating in environmental planning, compliance, negotiation, and litigation on behalf of health care facilities, including construction matters, underground storage tanks, Superfund, medical waste disposal and transportation, lead contamination, air quality issues and EPA and OSHA regulations.

Winston-Salem

1600 Southern National Financial Center
P.O. Drawer 84
Winston-Salem, NC 27102
(919) 721-3600

An Injury Control Strategy for Rural North Carolina

Thomas B. Cole, M.D., MPH

The cost of injury—in deaths, disabilities and dollars—is staggering, and it falls disproportionately on people living in rural areas. Injuries are the third leading cause of death in North Carolina, and death rates for most injuries are greater in rural than in urban areas (table 1). Reducing the rural/urban differences in injury death rates will require that we focus our attention on the reasons for these differences.

Of course, deaths are only the tip of the injury iceberg. A more complete description of injury morbidity would include hospitalization rates as well. However, only about 40% of hospitals specify the cause of injury (E-code) on hospital discharge records. In the next few years, as more hospitals provide E-codes, we may gain a better understanding of the burden of injury morbidity as well as mortality in North Carolina. Until then, we will have to use injury death rates to judge progress in injury control.

A commonly used strategic method¹ is to consider injuries in a broad context using a matrix (table 2) which allows injuries to be considered in three phases: a pre-injury phase, an actual injury phase, and a post-injury phase. Most health care providers and probably most policy makers focus on alleviating the post-injury phase. This perspective leads naturally to "high-

tech" solutions such as improved trauma systems. These high-tech approaches are invariably expensive, and decisions about them are usually made at the state level. In contrast, "low-tech" approaches come to mind when looking at the pre-injury phase. For example, low-tech approaches such as seat belts are inexpensive, and they can be put into practice by the people who live and work in rural communities.

Rural Trauma Systems

Trauma systems reduce the number of preventable trauma deaths in urban areas.² The idea of a system of trauma triage, transport, and treatment is built upon two key concepts:

- 1 Patient survival can be improved by providing definitive medical care, often including surgery, very soon after injury.³ This idea of a "golden hour" is based upon the physiologic response to severe trauma.
- 2 For severely injured patients, definitive care should be available at a moment's notice at any hour of the day or night. This means that hospitals not having immediately available blood products, radiology technicians, nurses, and surgeons must be bypassed in some cases and the patient transported to a trauma center. As D.D. Trunkey put it, we must get "the right patient to the right hospital at the right time."³

Most rural areas of the U.S. do not have effective trauma systems even

though the original concept was based on the transport and triage of wounded soldiers in rural Southeast Asia. Of course, trauma systems for rural areas have to be designed differently from those for urban areas. For example, transport from a rural injury scene may take longer than one hour because non-trauma centers are bypassed. As a result, emergency medical services personnel may require advanced life support training so that they are capable of providing care comparable to that available in bypassed hospitals. And we must address those factors outside the control of the trauma system that determine patient outcome, such as the time it takes to report a crash on a remote rural road. A task force has recently recommended these and other approaches to rural trauma systems in North Carolina.⁴

Seat Belts

Safety restraints such as seat belts (ideally with shoulder straps) and child safety seats are well known, readily available methods of injury control. If all drivers and front seat passengers wore seat belts, motor vehicle fatalities would decrease by about 9%.⁵ But despite their availability, effectiveness, and ease of use, only 60% to 70% of North Carolinians used seat belts in 1992.

In rural areas, seat belt use is about 14 percentage points lower than in urban areas,⁶ and drivers of pickup trucks have very low rates of use—as much as

From the NC Department of Environment, Health, and Natural Resources, P.O. Box 27687, Raleigh, NC 27611-7687.

Table 1. Age-Race-Sex Adjusted Injury Mortality Rates* in Urban and Rural North Carolina, 1987-1991

Cause	State	Urban	Rural
Motor Vehicle Injury	23.2	19.6	28.1
Firearms	16.3	15.3	17.8
Poisoning	2.6	2.6	2.6
Falls	4.0	4.1	3.9
Fires	2.7	2.2	3.3
Drowning	2.1	1.7	2.6

* Deaths per 100,000 residents, 1980 North Carolina population standard

20 percentage points lower. The rate of seat belt use also varies by sex and by geographic region (figure 1). Increased speed limits on rural interstate highways may account in part for higher motor vehicle death rates in rural areas, but lower rates of seat belt use probably account for much of the higher death rates.

The overall seat belt usage rate in North Carolina has increased substantially in the past ten years due to a combination of educational and coercive approaches. By providing both "carrots and sticks" to the motoring public, North Carolina's seat belt law has prevented about 1,100 serious and fatal injuries per year. Very few public health measures have had as great and immediate impact on the health of people in this state. It now appears that further improvement in seat belt use will depend upon intense, community-led health promotion campaigns.

A recent campaign in Bertie County achieved a short term increase in seat belt usage of 18 percentage points (from 30% to 48%).⁷ The seat belt promotion campaign was directed by a coalition of county agencies, including health, law enforcement, schools, business, industry, and media; it incorporated presentations to factory workers and company-sponsored incentives, police checkpoints with prizes for belt users, media coverage of the campaign and of local crash statistics, high school-based incentive programs and competitions, and highly visible observational surveys of seat belt use at roadway intersections. By sending a

Table 2. Matrix of example factors that influence the severity of motor vehicle crash injuries, by the period of their greatest influence in relation to the crash.

	Host	Agent	Environment
Pre-Crash	Alcoholism	Tire Blowout	Speed Limit Signs
Crash	Seat Belts	Airbags	Breakaway Poles
Post-Crash	Bleeding	Entrapment	Trauma System

coordinated "buckle up" message in multiple contexts,⁸ the county achieved a greater rate of usage than the state law alone did.

State and local efforts to promote seat belt use are well worth the effort. Not only are they effective in injury control, but they are cost-effective as well. A 1% increase in seat belt usage prevents three fatal, 27 severe, and 79 moderately severe motor vehicle injuries in North Carolina per year.⁹ The anticipated cost of the injuries prevented in Bertie County is \$87,821.¹⁰ Since the Bertie County program cost only about \$77,000, this prevention campaign paid for itself in one year. We need similar efforts to reduce the \$1 billion lifetime cost of the 67,450 motor vehicle injuries that occur in North Carolina each year.^{10,11}

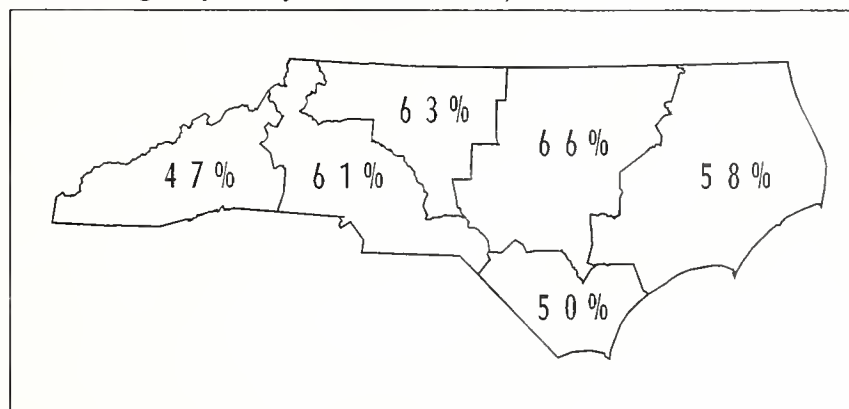
Controlling Other Causes of Injury

Although motor vehicle crashes are the leading cause of injury death in North Carolina (about 1,600 deaths each year), firearms, fires, and drowning together

account for another 1,475 deaths. Injury prevention is the key to reducing this death toll, particularly in rural areas. An improved trauma system alone would have limited effect, since over 90% of those who die in housefires die at the scene,¹² and 80% of drownings occur in natural bodies of water that often have poor telephone and roadway access.¹³

Prevention techniques have already reduced morbidity and mortality rates for some types of injuries in rural areas. For example, bright, reflective clothing has lowered hunting firearm injury rates.¹⁴ Other methods, such as use of smoke detectors, could reduce injury rates in rural areas. Unfortunately, smoke detectors appear to be less protective in mobile homes than in other types of dwellings,¹⁵ and mobile homes are widely distributed in rural areas. Finally, the use of personal flotation devices by boaters,¹³ the provision of lifeguards and rescue equipment at natural swimming areas,¹⁶ and the avoidance of alcohol while swimming, fishing, boating, hunting, target shooting, and driving would reduce the risk of injury in rural settings.

Figure 1. Seat belt use by region, North Carolina, 1991 (University of North Carolina Highway Safety Research Center)



Rural Lifestyles and Injury Control

If we are to achieve injury control in rural North Carolina, then health care providers and public health workers must recognize the cultural differences between rural and urban populations. For example, differences in injury risk and in the effect of injury control measures depend upon the availability of potentially dangerous consumer products and on differences in risk perception in rural areas.

Certain products, such as all-terrain vehicles (ATVs) and firearms, are often considered by rural residents as tools for living just as automobiles are considered a "necessity" for work and recreation by rural and urban residents alike. Despite their potential dangers, ATVs are increasingly popular for occupational and recreational use. There have been more than 1,000 ATV-associated fatalities and 400,000 emergency department visits in the U.S. since 1982, although the risk of serious injury can be reduced if riders and passengers wear helmets.¹⁷

Firearm death rates are higher in rural than in urban areas of North Carolina, possibly related to higher rates of firearm ownership. Almost half of all adolescent boys in rural North Carolina own a shotgun, rifle, or handgun,¹⁸ and rural parents are about twice as likely to own guns as urban and suburban parents.¹⁹ Unfortunately, it is difficult to

compare injury rates from firearms in the same way that rates can be compared for automobiles per vehicle mile traveled. This is partly because ownership and usage information is not required of firearm users as it is of motor vehicle operators.

Most injury control experts believe that firearms and ATVs are potentially dangerous types of equipment, but rural residents may not agree. People who live in rural areas may be comfortable with driving ATVs and with having loaded firearms around the house. They may not perceive them as dangerous if used correctly, any more than urban residents consider the lawnmower or barbecue grill a threat.

People become concerned about safety if they perceive some hazard as having a high likelihood of death, as being beyond the control of the person at risk, as being easy to imagine as a potential for disaster, or as occurring immediately upon contact with the hazard.²⁰ Consequently, true risk differences may not motivate people to behave safely (for example, by wearing seat belts) unless the perceived inconvenience of the behavior is outweighed by the possibility of a penalty (a fine), or by the personal experience of a crash (or of a family member or friend who was involved in a crash).

There is some evidence that residents of rural North Carolina are more likely than urban residents to discount

injury risks.⁷ However, rural residents may be more willing to take a physician's advice about product safety.¹⁹ A better understanding of how people in local communities perceive risks and respond to efforts to change their behavior and environment can help to reduce injury morbidity and mortality. Risk perception and the pace of behavioral and environmental change varies from community to community. Therefore, community health promotion is best carried out with local leadership and participation, and with a focus on specific community concerns.

Conclusions

Injury control requires a multifaceted approach that depends upon community perceptions and responses to risk. It is certainly true that trauma services are not as accessible as they should be to rural residents and that this problem should be remedied, but rural communities already have the power to make immediate improvements in product safety, home environments, and behavior that will reduce their injury morbidity and mortality. Community coalitions made up of health, business, education, law enforcement, fire and rescue, media, church, and other groups, professionals, and citizens can and should take advantage of proven, cost-effective injury prevention measures. □

References

- 1 Haddon W. A logical framework for categorizing highway safety phenomena and activity. *J Trauma* 1972;12:193-207.
- 2 West JG, Williams MJ, Trunkey DD, Wolfert CC. Trauma systems: current status - future challenges. *JAMA* 1988;259:3597-3600.
- 3 Trunkey DD. Trauma care at mid-passage - a personal viewpoint: 1987 AAST Presidential address. *J Trauma* 1988;28:889-95.
- 4 North Carolina Trauma System Task Force. Report. Raleigh, NC 1992.
- 5 Evans L. The fraction of traffic fatalities attributable to alcohol. *Accid Anal & Prev* 1990;22:587-602.
- 6 University of North Carolina Highway Safety Research Center. Belt success dependent on use. Highway Safety Directions 1989;2:7.
- 7 University of North Carolina Highway Safety Research Center. Rural promotion: program motivates rural residents to buckle up. Highway Safety Directions 1991;3:2-5.
- 8 Runyan CW, Runyan DK. How can physicians get kids to wear bicycle helmets? A prototypic challenge in injury prevention. *Am J Public Health* 1991;81:972-3.
- 9 Latimer EA, Lave LB. Initial effects of the New York State auto safety belt laws. *Am J Public Health* 1987;77:183-6.
- 10 Rice DP, MacKenzie EJ, et al. Cost of Injury in the United States: A Report to Congress. San Francisco, CA: Institute for Health and Aging, University of California and Injury Prevention Center, The Johns Hopkins University, 1989.
- 11 University of North Carolina Highway Safety Research Center. Single Variable Tabulations 1982-1985, North Carolina Accidents. Chapel Hill, NC 1986.
- 12 Patetta MJ, Cole TB. A population-based descriptive study of housefire deaths in North Carolina. *Am J Public Health* 1990;80:1116-7.
- 13 Patetta MJ, Biddinger PW. Characteristics of drowning deaths in North Carolina. *Public Health Rep* 1988;103:406-11.
- 14 Cole TB. Hunting firearm injuries, North Carolina. *Am J Public Health* 1988;78:1585-6.
- 15 Runyan CW, Bangdiwala SI, Linzer MA, et al. Risk factors for fatal residential fires. *N Eng J Med* 1992;327:859-63.
- 16 CDC. Drownings in a private lake - North Carolina, 1981-1990. *MMWR* 1992;41:329-31.
- 17 Pyper JA, Black GB. Orthopaedic injuries in children associated with use of off-road vehicles. *J Bone Joint Surg* 1988;70A:275-84.
- 18 Sadowski LS, Cairns RB, Earp JA. Firearm ownership among nonurban adolescents. *Am J Dis Child* 1989;143:1410-3.
- 19 Webster DW, Wilson EH, Duggan AK, Pakula LC. Parents' beliefs about preventing gun injuries to children. *Pediatr* 1992;89:908-14.
- 20 Slovic P, Fischhoff B, Lichtenstein S. Rating the risks. *Environment* 1979;21:14-39.

An intensive one-day seminar that shows you how to apply strategies in your professional practice everyday to avoid malpractice litigation—techniques you can begin using *immediately!*

Although lawyers and malpractice insurers fail to emphasize the fact, you can avoid malpractice suits by applying certain techniques in your practice everyday. Some busy doctors are never sued: by using the same techniques they do, you too can avoid malpractice litigation.

THIS SEMINAR IS *BY* A PHYSICIAN, *FOR* PHYSICIANS AND OTHER HEALTH CARE PROVIDERS.

HOW TO AVOID MALPRACTICE LITIGATION

-A ONE DAY SEMINAR-

THIS WILL BE THE BEST INVESTMENT YOU HAVE EVER MADE TOWARD AVOIDING UNFOUNDED LAWSUITS!

While attending this practical, one-day seminar, you will learn how to:

- Identify early and handle the litigious or "suit-prone" patient appropriately
- Satisfy a disgruntled patient before he considers suing
- Hire office staff best suited to help you avoid malpractice litigation
- Plan the defense with your assigned attorney
- Teach your staff 100 desirable behaviors to better interact with patients and professional colleagues
- Decide if and when to hire your own lawyer
- Work with your lawyer to prepare the best defense
- Be your own best "expert witness"
- Teach proper telephone etiquette to your staff—an essential skill in avoiding malpractice litigation
- Help your lawyer choose an expert witness
- Safely dismiss a patient from your care
- Deal with the National Practitioner Data Bank
- Apply key behaviors in you and your office staff to avoid malpractice litigation
- Keep better records: Document! Document!
- Begin preparing for your defense *immediately* after being notified of a malpractice action
- Dress and act appropriately in court to defuse plaintiff's case and win the jury
- Protect your own interests in cases with multiple defendants
- Check the track record and credentials of the lawyer assigned to you by your malpractice carrier
- Avoid certain damaging statements while testifying in a deposition or courtroom
- Make your records work for you even before a malpractice action is ever instituted
- Maintain strict record confidentiality.

You can greatly lower your risk of litigation now by applying the same techniques other successful physicians have used to avoid lawsuits—we can help you *immediately* if you are already being sued!

Check one:

- ☐ **Raleigh, NC - October 20, 1993**
North Raleigh Hilton Conference Center
- ☐ **Charlotte, NC - October 21, 1993**
Sheraton Airport Plaza

- ☐ **Charleston, SC - October 27, 1993**
Ramada Inn Airport
- ☐ **Columbia, SC - October 28, 1993**
Columbia Marriott Hotel

— presented by —

MID ATLANTIC CONSULTING SERVICES

To enroll for this seminar:

1. Call toll-free 1-800-247-4686 and charge your entry fee of \$295 on your AmEx, VISA or MasterCard or
2. Mail your check with the bottom of this page and your letterhead to Mid Atlantic Consulting Services,
PO Box 7026, Lancaster, PA 17601

For more information:

1. Call our toll-free number and we will send you more details about our fact-filled seminar to help you avoid malpractice litigation.

Agricultural Hazards in North Carolina

Judy Bernhardt, R.N., Ph.D., and Ricky L. Langley, M.D., M.P.H.

Agriculture is important to the livelihood of North Carolina, accounting for about 29% of the state's economy in 1990.¹ However, the number of farms and farmers decreases yearly. The proportion of the state designated farmland dropped from 61.5% in 1950 to 34.5% in 1987, and the number of farms fell from 288,508 to 72,000 (down to 60,000 in 1992).² The agricultural workforce size is seasonal; the number in July (approximately 100,000 individuals) is three times that in November.

The general public usually thinks of farming as a "healthy outdoor activity." In reality, it is one of the three most dangerous occupations in the United States, along with construction and mining.³ In this paper we discuss some of the hazards and special health problems of agriculture: traumatic injuries; hearing loss and problems due to vibration; dermatoses; respiratory problems; zoonotic diseases; chemical hazards; cancer; and health concerns of migrant workers.

Dr. Bernhardt is from the School of Nursing, East Carolina University, Greenville, NC 27858. Dr. Langley is from the Department of Family and Community Medicine, Division of Occupational and Environmental Medicine, Duke University, Durham 27710.

Traumatic Injuries

Injuries, usually related to use of machinery, are a leading cause of morbidity and mortality among farmers. Each year in North Carolina there are approximately 4.1 deaths, 980 injuries and 480 disabling injuries (permanent or temporary disabilities resulting in lost work time) per 10,000 workers.¹ US workers' compensation data for 1976 to 1983 show that typical injuries are sprains/strains, cuts/lacerations or contusions involving the contact of extremities or head with work surfaces, livestock or hand tools.⁴ Hands, arms, feet and legs are the sites of about 50% of the injuries, and the back, about 15% to 20%. We have no data for farms with no or few hired workers (small farms are generally exempt from workers' compensation), but those who work small farms probably face similar hazards and have similar injuries.

Using medical examiner reports, we discovered 123 accidental farm fatalities in North Carolina from 1984 to 1988.⁵ All cases involved men, 76% of whom were white; mean age was 54 years (range 6 to 85). Sixty-two percent of deaths (n=76) were directly related to use of tractors; other causes included use of other machinery (n=17), electric current (n=9), and falling objects (n=8). Most victims (73%) died at the accident scene; fewer than 20% lived to reach a hospital.

Our unpublished data show 342 tractor-related deaths in North Carolina between 1979 and 1988. Most victims were white (85%) men (98%) with a mean age of 53 years. Victims older than 64 accounted for 38% of cases. Nineteen percent of tested victims (50/262) had some alcohol in their blood, with concentrations higher than 80 mg/dL in 14%. Death was instantaneous in 55% of cases and occurred within 24 hours in 87%. The Mountain and Piedmont regions had higher rates of fatal injuries than the Coastal Plain. In 191 cases the tractor rolled over on the operator, but in 79 cases the victim was run over. In many cases bushhogs or mowers, trailers and hitches, or disc harrows attached to the tractor at the time of injury were the direct cause of death.

Hearing Loss and Problems Due to Vibration

Besides direct injury, mechanized equipment such as tractors leads also to hearing loss and problems from vibration.^{6,7} Farmers have more hearing loss than office workers,⁷ and many types of farm machinery, especially old equipment, generate excessive noise levels. Repairing mufflers and using hearing protectors can decrease hearing loss. In addition to hearing damage, whole body

vibration is associated with fatigue, impaired balance, chronic back pain, degenerative changes in the spine, prostatitis, and hemorrhoids.

Dermatoses

The agricultural work environment poses many hazards to the skin. Climatic factors include the sun and temperature extremes. Agricultural chemicals (pesticides, feed additives, veterinary drugs, fertilizers, fuels, and disinfectants), contact with allergenic plants, infectious agents and arthropods may result in contact, allergic, irritant or photo-contact dermatitis.^{6,8}

Respiratory Problems

Farmers are at high risk of respiratory disorders from agents in their work environment. These include inorganic and organic dusts, chemicals, and infectious agents that affect the respiratory system. Of course, the type and duration of exposure, the solubility and concentration of gases, the number and virulence of infectious organisms, the type of ventilation in the workplace, the use of personal protective equipment, and the underlying health of the individual determine the nature of the response to the offending agent.⁹ Smoking increases the prevalence of symptoms and worsens pulmonary function test results.

Pulmonary symptoms associated with grain crops occur primarily in the summer and fall (those arising from animals occur year round or predominantly during the winter months when the causative agents are concentrated in animal confinement houses). Grain dust consists of both organic and inorganic particles, the composition varying depending on the type of grain, the location and conditions of growth, and the methods of harvest, storage and processing. Grain dust can cause acute respiratory inflammatory responses (nasal stuffiness, rhinorrhea, sore throat, acute bronchitis, occupational asthma), organic dust toxic syndrome, hypersensitivity pneumonitis, and eye and

skin irritation.^{3,6,9} Antigens from grain weevils may cause some of these symptoms.

Several distinctive disorders are associated with inhalation of organic dust.^{6,9} Organic dust toxic syndrome (ODTS) is relatively common, and many individuals exposed to moldy straw or hay may develop ODTS while only one or two will develop hypersensitivity pneumonitis (see below). ODTS results in flu-like symptoms which resolve after a few hours or days and require only symptomatic treatment. It is distinguished from hypersensitivity pneumonitis by a normal chest x-ray, by normal or mildly restrictive pulmonary function test findings and by a polymorphonuclear cell reaction found in bronchoalveolar lavage fluid. Subjects with ODTS do not react to the farmers' lung antigen panel.

Hypersensitivity pneumonitis (farmer's lung) occurs after exposure to organic dusts. It usually produces an interstitial pattern on chest x-ray, restrictive changes on pulmonary function tests and mononuclear cells in bronchoalveolar lavage fluid. Fibrosis of the lung may develop after continued dust exposure. Serum antibodies to fungi and actinomycetes demonstrate exposure and host reaction but poorly predict the development of symptoms. When dust exposure cannot be completely avoided, agricultural workers should use tight-fitting dust masks or respirators. If symptoms persist, workers should be removed from further exposure.

Zoonotic Diseases

Diseases caused by infectious agents common to animals and people (zoonotic diseases) are a hazard for agricultural workers.^{3,6} Those posing the greatest risks in the United States are tularemia, Rocky Mountain spotted fever, plague, Lyme disease, leptospirosis, brucellosis, Q fever and rabies. Altogether, about 25 zoonoses are of significance in the US, but their true prevalence is unclear. Many infections are mild, and workers never seek health care; those more severely infected may

seek care but be misdiagnosed because symptoms mimic "influenza." Also, only a few zoonoses must be reported to state or national authorities.

Chemical Hazards

Most physicians are aware of the hazards of pesticides, but may not realize how many other types of hazardous chemicals are used on farms.¹⁰ We will discuss a few of the more common ones.

Farmers usually repair their own equipment and are exposed to a variety of solvents and fuels. Defatting of the skin or chemical burns may occur after prolonged contact. Solvent vapors may be pulmonary irritants, and at high concentrations cause headaches, dizziness, nausea, and mental confusion. Siphoning of gasoline may lead to aspiration and severe pulmonary damage.

Fumigants (including methyl bromide, phosphine, and hydrogen cyanide) are used to sterilize farm products such as grain, or to kill nematodes in the soil. Fumigants are highly penetrating agents and can cause severe pulmonary and dermal injury.

Fungicides are applied to seeds, shrubs, trees, and some crops. Toxicity ranges from mild skin irritation to severe systemic illness. Farm workers with high fever, tachycardia, and dehydration may be suffering not from heat stroke but from exposure to dinitrophenol or pentachlorophenol fungicides. The symptoms result from uncoupling of oxidative phosphorylation leading to a hypermetabolic state. These individuals tend to have profuse sweating, which helps differentiate this syndrome from heat stroke.

There are thousands of pesticides on the market, but fortunately few deaths from accidental poisoning. Most physicians know the acute nicotinic and muscarinic parasympathetic effects of organophosphate poisoning.^{3,6,10} Unfortunately, most do not know the consequences of chronic long-term exposure. Many pesticides cause reproductive problems and birth defects in animals, and a few have demonstrated reproductive and carcinogenic effects

in humans.¹¹ Accidental ingestion of dipyrityls such as paraquat can cause pulmonary fibrosis.¹⁰ Delayed neurotoxicity may occur after acute organophosphate poisoning.¹²

Many of the fertilizers used on the farm are hazardous. Anhydrous ammonia, a source of nitrogen stored in liquid form in pressurized tanks, is very water soluble and forms a strong alkaline solution which can severely burn the skin, eyes, and mucous membranes.¹⁰ Inhalation of anhydrous ammonia can cause adult respiratory distress syndrome, bronchiolitis obliterans, and chronic bronchiectasis. Fatalities can occur.

Granular fertilizers pose less direct hazard to the worker, but frequent use may result in nitrate contamination of ground water. High levels of nitrates in the soil and of nitrates and nitrites in ground water can cause adverse health effects, especially in children;¹⁰ contaminated well water can cause infant death by producing methemoglobin. There is also a concern that potent carcinogens (nitrosamines) may be formed from the combination of nitrates with secondary amines in the body. Some studies have found a possible relationship between nitrates in drinking water and gastrointestinal cancers.¹⁰

Agricultural workers must be encouraged to wear protective clothing, even in hot weather, to practice good personal hygiene, and to wash pesticide-contaminated clothing separately from regular household laundry. Proper storage of chemicals is essential to prevent poisoning of children. We should encourage proper disposal of pesticides and farming methods that decrease their use.

Cancer

The age-, race-, and sex-adjusted incidence and mortality rates of most cancers are lower in rural than in urban areas.¹³ One reason is the greater prevalence of high-risk lifestyles in urban areas. Lower lung, esophagus, larynx, and colon cancer rates in farmers can be attributed to the fact that the per-

centage of farmers who smoke is about half that of the general population.⁶

But farmers do have excess risk for leukemia, non-Hodgkin's lymphoma, multiple myeloma, lip, skin, stomach, brain and prostate cancer. Best documented is the association of leukemia (especially acute, chronic, or unspecified lymphatic leukemia) with exposure to dairy cattle, poultry production, corn production, and nitrogenous fertilizer use.¹⁴ Heavy sun exposure causes skin and lip cancer,⁶ but other factors of potential significance include exposure to fertilizers, pesticides and other agricultural chemicals, zoonotic oncornaviruses and chronic antigenic stimuli.^{6,15}

Studies of whether pesticides cause cancer are generally inconclusive. The data on phenoxy herbicides (such as 2,4,5-T, 2,4-D, MCPA) and dioxins are equivocal,¹¹ while that for organochlorine pesticides (such as chlordane, heptachlor, aldrin and dieldrin) show that they could be carcinogenic. There is strong epidemiologic evidence that arsenic plays a role in lung and possibly in hematopoietic and lymphatic cancers, but arsenical pesticides are uncommon today.¹¹

Delzell and Grufferman¹⁶ determined the proportional mortality ratios (PMR) of white and nonwhite male farmers aged 15 and over who died in North Carolina during 1976-1978. White farmers had an increased frequency of melanoma (PMR=1.2) and other skin cancers (PMR=1.8); nonwhite farmers had increased frequency of melanoma (PMR=6.3), brain cancer (PMR=2.3), and leukemia (PMR=1.9). Frequency of prostate cancer was elevated in both whites (PMR=1.6) and nonwhites (PMR=1.3) under the age of 65. In contrast to studies made elsewhere, Delzell and Grufferman did not find increased mortality from leukemia, non-Hodgkin's lymphoma or multiple myeloma in white farmers in North Carolina. The PMR for leukemia (most frequently myeloid) was elevated (2.3) in nonwhite farmers aged 65 and over. The PMR for multiple myeloma was 2.5 for nonwhite farmers under the age of 65. One possible explanation for the differences in rates by race is that more

nonwhites than whites were laborers and thus may have experienced heavier toxic chemical exposure. Delzell and Grufferman suggested that the inconsistent findings between geographical regions may be due to varying climate, topography, economic and social factors which result in different types of crop production, pesticide usage and other chemical exposures.

Migrant Worker Health

North Carolina ranks fifth in the nation in number of migrant and seasonal farm workers.¹⁷ The number of seasonal farm workers is declining, but the number of migrant workers and their families is increasing. About 44,000 migrant farm workers and their families travel up the East coast to North Carolina each year. There are an estimated 3,000 migrant camps in the state. A non-random survey of migrant camps in 1988 found the typical worker to be a Mexican man, between 22 and 27 years of age, with a fifth grade education; African-Americans and workers from the Caribbean Islands made up a large minority of migrants.

Migrant workers are important to North Carolina agriculture: seasonal migrant farm workers harvest 60-65% of the State's commercial fruit, vegetable, and tobacco crops.¹⁷ The number of farms may be decreasing, but the use of migrant farm labor is increasing, fueled by large-scale agri-business farm operations, increased crop diversification, and increased numbers of new manufacturing facilities in North Carolina. And economic depression and political unrest in third-world countries keep increasing the number of immigrants, both legal and illegal, coming into North Carolina.

Poverty, sub-standard and unsanitary housing, inadequate handwashing facilities in the field, exposure to agricultural chemicals, limited access to and lack of continuity in health care, and language and educational barriers all have a negative impact on the health of migrant workers. Migrant farm workers have more infectious diseases and more clinic visits

for diabetes, for medical supervision of infants and children, for pregnancy, for otitis media, for hypertension, for contact dermatitis, and for eczema than the general population.^{17,18}

One study in North Carolina found that 8.4% of migrant workers had reported an on-the-job injury.¹⁹ Of those seriously injured, 65% did not receive prompt medical attention (often due to crew leader resistance or lack of transportation to medical facilities).

Infectious diseases are common in migrants. The risk of tuberculosis is six-fold higher in farmers than in other occupational groups.²⁰ In North Carolina, tuberculin skin tests were positive in 33% of Hispanics, 54% of US-born blacks, and up to 76% of Haitian migrant workers.²¹ Active tuberculosis occurred in 3.6% of US-born blacks and 0.47% of Hispanics. Unfortunately, migrants travel frequently. As a result,

they often do not receive adequate treatment, increasing the possibility that multiple-drug-resistant tuberculosis will develop. The Centers for Disease Control recently published guidelines on TB control in migrant workers.²⁰

Sexually transmitted diseases, too, are common.^{22,23} Unfortunately, language and sociocultural barriers create a lack of basic information and understanding about these diseases. A 1987 survey found that 2.6% of migrant farm workers in the Tri-County Community Health Center (Newton Grove, North Carolina) were human immunodeficiency virus (HIV) antibody-positive.²² In Florida, 8% of migrant workers were sero-reactive for syphilis and 5% were sero-positive for HIV.²³ Screening of migrants for diseases such as HIV, syphilis, and tuberculosis is needed to prevent rapid spread among individuals living in camps.

Poor sanitary conditions in migrant houses and in the fields are associated with a high prevalence of gastrointestinal infections. Drinking water from a sample of migrant camps in North Carolina showed a 26% prevalence of fecal coliform bacteria.²⁴ In another study, 35-37% of migrant workers had pathogenic parasites (usually hookworms or whipworms) present in fecal samples.²⁵

The Occupational Safety and Health Administration is responsible for inspecting and issuing citations regarding migrant housing in North Carolina. Better access to education and health care for both farm owners and migrant workers, through agencies such as the Cooperative Extension Service and county health departments, may help decrease injuries and illness in this population. □

References

- 1 McLymore R, Derthick S. Agricultural Health Promotion System Resource Manual. Raleigh, NC: North Carolina Cooperative Extension Service, 1992.
- 2 Watson D. (ed.). North Carolina Agricultural Statistics 1992. Raleigh, NC: North Carolina Agricultural Statistics, 1993.
- 3 Cordes D, Rea D. Health hazards of farming. *AFP* 1988; 38:233-244.
- 4 Cohen M, Moll M, Maley P, Linn H. Statistical description of agricultural injuries in the U.S. In J. Dosman and D Cockcroft (Eds.), *Principles of Health and Safety in Agriculture*. Boca Raton, FL: CRC Press, Inc., 1989, pp. 311-315.
- 5 Bernhardt J, Langley R.. Accidental occupational farm fatalities in North Carolina from 1984-1988. *J of Rural Health* 1992; 8:60-69.
- 6 Donham K, Horvath E. Agricultural occupational medicine. In C. Zenz (Ed.), *Occupational Medicine: Principles and Practical Applications* (2nd ed.) Chicago: Year Book Medical Publishers, 1988.
- 7 Crutchfield C, Sparks S. Effects of noise and vibration on farm workers. *Occupational Medicine: State of the Art Reviews* 1991; 6:355-369.
- 8 Adams RM, (ed). *Occupational Skin Diseases* (2nd Ed.). Philadelphia: W.B. Saunders, 1990.
- 9 Schenker M, Ferguson T, Gamsky T. Respiratory risks associated with Agriculture. *Occupational Medicine: State of the Art Reviews* 1991; 6:415-428.
- 10 Shaver C, Tong T. Chemical hazards to agricultural workers. *Occupational Medicine: State of the Art Reviews* 1991; 6:391-413.
- 11 Sharp D, Eskenzai B, Harrison R, Caldas P, Smith A. Delayed health hazards of pesticide exposure. *Ann Rev Public Health* 1986; 7:441-471.
- 12 Davies JE. Neurotoxic concerns of human pesticide exposures. *Am J Industrial Med* 1990; 18:321-325.
- 13 Monroe A, Ricketts R, Savitz L. Cancer in rural versus urban populations: A review. *J of Rural Health* 1992; 8:212-219.
- 14 Burmeister L, Van Lier S, Isacson P. Leukemia and farm practices in Iowa. *Am J Epidemiol* 1982; 115:720-728.
- 15 Pearce N, Smith A, Fisher D. Malignant lymphoma and multiple myeloma linked with agricultural occupations in a New Zealand cancer registry-based study. *Am J Epidemiol* 1985; 121:225-235.
- 16 Delzell E, Grufferman S. Mortality among white and nonwhite farmers in North Carolina, 1976-1978. *Am J Epidemiol* 1985; 121:391-401.
- 17 North Carolina Farm Worker Council. The status of migrant health in North Carolina. North Carolina Primary Health Care Association, August 1991.
- 18 Rust GS. Health status of migrant farm workers: A literature review and commentary. *Am J Public Health* 1990; 80:1213-1217.
- 19 Ciesielski S, Hall P, Sweeney M. Occupational injuries among North Carolina migrant farm workers. *Am J Public Health* 1991; 81:926-27.
- 20 CDC. Prevention and control of tuberculosis in migrant farm workers. *MMWR* 1992; 41 (No.RR-10):1-15.
- 21 Ciesielski SD, Seed JR, Esposito DH, Hunter N. The epidemiology of tuberculosis among North Carolina migrant farm workers. *JAMA* 1991; 265:1715-1719.
- 22 Centers for Disease Control. HIV seroprevalence in migrant and seasonal farm workers - North Carolina, 1987. *MMWR* 1988; 37:517-519.
- 23 Centers for Disease Control. HIV infection, syphilis, and tuberculosis screening among migrant farm workers - Florida, 1992. *MMWR* 1992; 41:723-5.
- 24 Ciesielski S, Handzel T, Sobsey M. The microbiologic quality of drinking water in North Carolina migrant labor camps. *Am J Public Health* 1991; 81:762-764.
- 25 Ciesielski S, Seed J, Ortiz J, Metts J. Intestinal parasites among North Carolina migrant farmworkers. *Am J Public Health* 1992; 82:1258-1262.

Official Call

House of Delegates

House of Delegates Meetings Scheduled

Notice to:

Delegates, Alternate Delegates, and Officials of the North Carolina Medical Society, component medical societies, and specialty societies.

Sessions of the House of Delegates will convene at the Adam's Mark Hotel, Charlotte, North Carolina, at the following times:

Friday, November 5, 1993 - 8:30 a.m. - Opening Session

Sunday, November 7, 1993 - 9:00 a.m. - Second Session

A member of the Credentials Committee will be present at the Meeting Registration Desk on Thursday, November 4, 1993, from 3:00 p.m. to 5:00 p.m., and Friday, November 5, 1993, from 8:00 a.m. to 9:00 a.m. to certify Delegates. Delegates must bring their Credential Cards for presentation at the Registration Desk. Delegates must wear their badges to be seated in the House of Delegates.

Reference Committee Hearings

Reference Committee hearings are scheduled to begin Friday, November 5, 1993, at 2:00 p.m.

F. Maxton Mauney, Jr., MD, President

Elizabeth P. Kanof, MD, President-Elect

John A. Fagg, MD, Speaker

Charles L. Garrett, Jr., MD, Vice-Speaker

Carolyn R. Ferree, MD, Secretary-Treasurer

George E. Moore, Executive Vice-President

AIDS In Rural North Carolina

Richard L. Rumley, M.D., and James D. Esinhart, Ph.D.

"How ya' gonna keep 'em down on the farm...?"

Unfortunately, this age-old question is being answered by the Acquired Immunodeficiency Syndrome (AIDS). The highways that carried farmers' children to the opportunities of city life now bring them back home to the care and comfort of the farm. This to and fro migration parallels the route of the developing AIDS epidemic. What was a metropolitan plague now devastates local farm communities.¹⁻³ In rural settings, human immunodeficiency virus (HIV) infections flourish uncontrollably. How has this happened? Migrating rural adolescents and young adults sought their fortunes in urban centers but found only urban problems like AIDS. Hard times sent them back home.

These returning travelers, the "urban run-off," bring problems back with them: use of injectable drugs, sexual promiscuity, and HIV infections. Rural areas have had only limited HIV exposure and, therefore, awareness of and control measures for injectable drug use and HIV are only beginning.^{4,5} The urban run-off arrive back home without jobs, skills training, or insurance coverage; they move freely among communities, often "staying" with family or friends.² They are "street wise" and mobile, but because they don't know about or don't acknowledge their HIV infection, they become a perfect vector

for passing HIV to home town friends. Unprotected sexual contact or needle sharing yields a bounty of "home grown" HIV infections.

Many communities already have established social circles of high school or junior high age adolescents or young adults who engage in promiscuous or recreational sex and use alcohol and drugs.^{2,5} Trading sexual contact for drugs or cash (prostitution) or for food, shelter, and child care ("survival sex") extends HIV infections from, among and to these circles.^{6,7} HIV infections are increasing in young middle class whites although most "home grown" HIV infections still occur in the indigent and non-white. A large pool of indigent rural non-white single males infected with HIV makes women from similar backgrounds especially vulnerable.⁴

Resources required to care for HIV/AIDS are scarce in many rural areas, and the social stigma attached to HIV infection further limits medical care.⁸ Rural patients with symptomatic HIV may turn to metropolitan areas for care.^{2,4,8} This creates a "two way HIV freeway", directing both home grown and urban run-off HIV patients back to the city. This traffic obscures effective HIV control measures and resource allocation. Rural or "second wave" HIV disease has risen almost unnoticed.

Coping with the ubiquitous rural and urban HIV problem requires a combined regional approach which can maximize education, resources and patient referral systems to avoid resource gaps and patient census overloading. We believe that rural HIV/AIDS pa-

tients should receive primary care services in their own communities with tertiary care available regionally. This reduces traffic on the HIV free-way, lowers costs, improves health care availability, and reduces the spread of HIV.

A Look at AIDS in Rural North Carolina

In this report we review information collected from the literature, from publicly assembled data,⁹⁻¹⁶ and from information about HIV/AIDS obtained from the University Medical Center of Eastern Carolina at Pitt County (UMCEC-PC). The HIV/AIDS patients obtain at least some of their care at UMCEC-PC and are part of an ongoing study of this population which has been approved by the institutional review and human investigation committees of East Carolina University and Pitt County Memorial Hospital. We designated North Carolina counties (see Figure 1) as metropolitan, adjacent (touching a metropolitan county) or distant (at least one county removed from the metropolitan county). Adjacent and distant counties are more rural than metropolitan counties. Migrant and seasonal farm worker data have been reported previously.¹⁷ We used our previous definitions of patient selection criteria, risk, disease and demographic variables.²

The SAS/STAT software was used for all analyses.¹⁸ Rates of incidence of AIDS, early syphilis, tuberculosis, and gonorrhea are defined as the slope of

From the Department of Medicine (RLR) and the Center for Biostatistics (JDE), East Carolina University School of Medicine, Greenville, NC 27858.

incidence over time, using a simple linear regression model. The rate of incidence for AIDS was correlated with other disease incidence rates, and with race, poverty, migrant and seasonal farm worker distribution, and percent of school drop-outs using regression equations for continuous data or t-tests for nominal data. Geographic display of diseases and demographics was performed with Atlas GIS 2.1 software.¹⁹

The Data for North Carolina

Figure 1 shows the state-wide adjusted incidence of AIDS, syphilis, and tuberculosis by county. Racial and urban distribution are shown since these correlate with increasing AIDS incidence; syphilis is associated with AIDS growth world wide.^{7,21,22} A county's incidence rate of gonorrhea, its proportion of school drop-outs and the percentage of the population living in poverty tend to correlate with increasing AIDS incidence. Figure 2 displays the annual reported AIDS incidence rates for the three types of counties.⁹

As of December 31, 1992, 873 HIV/AIDS patients had been entered into the UMCEC-PC log; 737 were available for analysis (we excluded 136 patients who left the area, were lost to follow-up or did not have complete datasets). Table 1 compares HIV/AIDS patients followed at UMCEC-PC with statistics reported for AIDS patients in North Carolina.⁹ Approximately 80% of AIDS patients at UMCEC-PC are also included in NC AIDS data. Patient reports of whether they contracted AIDS out-of-state, county migration, state migration, and medical insurance coverage are available only for the UMCEC-PC patients.

The data in Table 1 suggest that UMCEC-PC AIDS patients are more likely to be non-white, non-metropolitan, heterosexual and female than NC AIDS group. The racial and county distributions of patients with AIDS are not significantly different when the data are adjusted for population differences. HIV patients listed in Table 1 come from the UMCEC-PC population

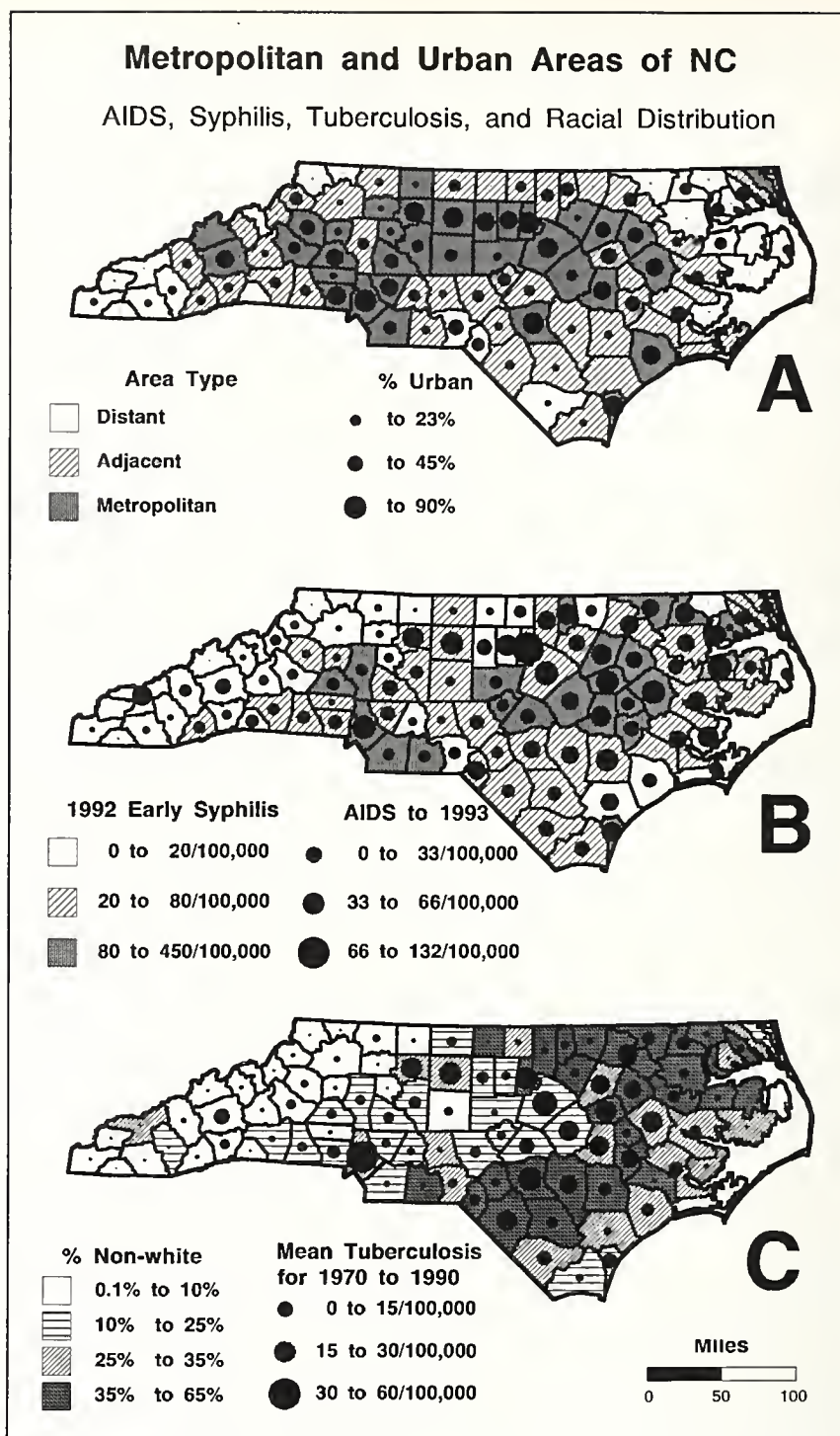


Figure 1. Map A displays North Carolina counties that are considered metropolitan; adjacent counties touch metropolitan counties; distant counties do not.¹³⁻¹⁵ The proportion of urban population for each county is shown in Map A.¹²

Map B displays the 1992 incidence of reported early syphilis¹⁰ and the cumulative incidence for reported AIDS from December 1984 to January 1993 by county.⁹

Map C shows the distribution of non-white population in North Carolina as of 1990¹² by county and the mean incidence of reported tuberculosis from 1970 to 1990 by county.¹¹

North Carolina's Reported AIDS Incidence Rates, 1984 through 1992, by County Location and Designation

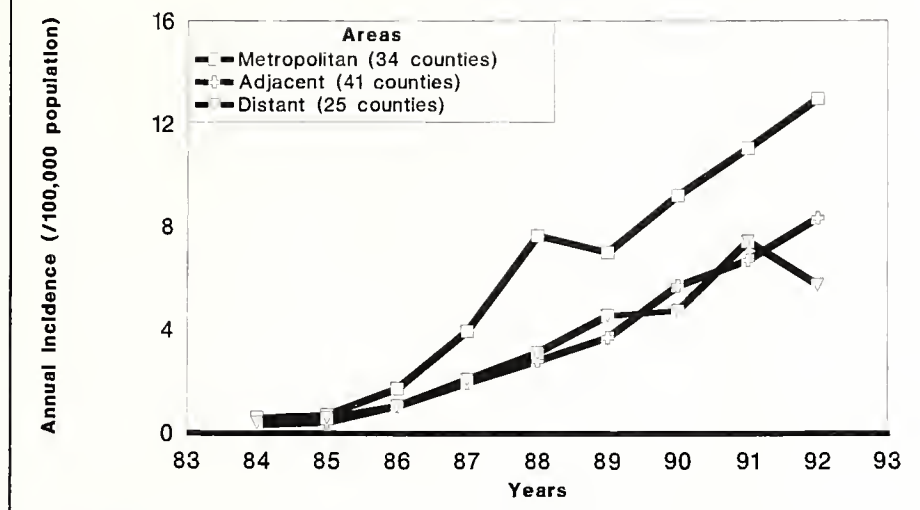


Figure 2. The annual reported AIDS incidence rates for North Carolina's metropolitan, adjacent and distant counties.⁹ The 1992 incidence rates may be low due to reporting delays.

and represent future AIDS patients; they tend to be more metropolitan, female, heterosexual, and "home-grown" than UMCEC-PC's present AIDS patients.

Fifty-two percent (382) of the HIV/AIDS patients at UMCEC-PC migrated into the service area from elsewhere. This proportion is down from 65% two years ago. Approximately 80% of these patients return with or to family; most are indigent, unemployed, untrained, uninsured, or homeless. Almost 25% (186) of our HIV/AIDS patients have relocated from a distant or adjacent county in order to be closer to a metropolitan county with medical services. Only 2% (12) have moved away from a metropolitan county, usually to be closer to family (service availability is not an issue for these patients). We recorded an average of 1.4 location changes (range: 1-6 new addresses) for patients that relocate. There is no difference in the frequency or pattern of relocation between home-grown and urban run-off patients infected with HIV. Only 39/873 (5%) of UMCEC-PC HIV/AIDS patients have moved away from our service area, usually following the loss of health, family, job or insurance.

The most mobile patients in our log are the injectable drug users, 72% of whom are male, 83% are non-white, 92% have never had insurance and 28% have never applied for medicaid or insurance. Sixty-six percent (142) of this group has moved into our service area; 33% (71) has relocated at least once within our area, usually to be closer to services.

Forty-two percent of the 212 women in the UMCEC-PC database have moved into our service area and 23% have relocated within the area. Most of these women admit to practicing prostitution, "survival sex", injectable drug use or combinations of these behaviors. Many have had several male sex partners before coming to our clinic and some of the partners also attend our clinic. Sixty percent of the women have children, a total of 290 children with an average age of 8.9 years. Most women with children are single parents (never married or widowed by the HIV).

The Scope of the Problem

AIDS came back home to the farm in the 80s.¹⁻³ Now it travels town and

country highways in the 90s. This flux has changed AIDS from an urban disease associated with injectable drug use and homosexual activity into a pandemic reflecting the behavioral norms of people living in an area.

Since HIV/AIDS is now a regional problem, we must focus our efforts at understanding, control and care on entire regions rather than on high prevalence epicenters.²² Public and private health care systems, local and state governments, grassroots and national organizations must work together to formulate strategies for optimal AIDS care. Further, North Carolinians must realize that the stigma of AIDS costs more in lives, suffering, and resources than the disease itself. Everyone must work to set aside this stigma and contribute constructively to solving our HIV problem. At least three questions must be addressed: 1) What are the mechanisms that amplify the cascade of cases? 2) What community and regional resources are available to slow the cycle? 3) How can resources be coordinated regionally to control AIDS growth?

"... the stigma of AIDS costs more in lives, suffering, and resources than the disease itself."

Urban and rural areas contribute proportionally to the shared regional AIDS growth in at least three ways. First, a steady supply of HIV-infected patients move from urban centers to rural communities. Second, limitations on sex education, on prevention of injectable drug use and on control of communicable disease fortify regional HIV growth. Finally, limited availability of rural medical, social and eco-

conomic services for AIDS care produces an overflow of HIV patients. As a result, rural patients with symptomatic AIDS migrate to nearby cities for care where their use of the limited services forces other, less symptomatic HIV patients to move rurally. Patient migration continues back and forth, each cycle yielding new HIV infections, spreading HIV/AIDS rurally, and wasting resources.^{3,8} Patients can spend about as much time on the road seeking services as they do at home or in the clinic. Regional HIV/AIDS has become a larger problem than either the urban or rural area perceives.

The Heritage of Impoverishment

The cultural, social and economic composition of rural (and inner-city) areas make their inhabitants especially vulnerable to HIV infection. Although recreational (not for profit) sex is an important component of HIV transmission among middle class rural youth, it has not yet overtaken the contributions of prostitution sex, survival sex and injectable drug use in rural areas.^{4,5} In many ways the epidemiology and demographics of HIV infection seen in the UMCEC-PC database parallel those of some third world African countries.^{6,20} In these areas as in ours, sex and injectable drugs are commodities for sale. A weak economy, sparse recreational alternatives, and limited control measures allows these rural "road-side pleasure businesses" to flourish.

"Couple families" and "grandmother families" are also common in both areas. Couple families are made up of an unmarried couple, usually a man and a woman, and their children living together. The woman provides sexual favors (survival sex), cleaning, and cooking; the man works for minimum wage at a manual labor, mill or seasonal farm job to support the woman and the children. In "Grandmother families," an infant of an unmarried young couple is raised by one or both grandmothers. Usually

Table 1. Comparison of AIDS patients reported in North Carolina with AIDS and HIV patients cared for at UMCEC-PC.⁹

	NC Reported	Patients cared for at UMCEC-PC*	
	AIDS(%)	AIDS(%)	HIV(%)
Total	2998	427	310
Death†	1966(66)	194(45)	17(5)
Sex†			
Female	444(15)	98(23)	114(37)
Race†‡			
Non-white	1742(58)	314(74)	225(73)
Risk†§			
Homo/Bisexual	1374(46)	170(40)	90(29)
IDU	657(22)	102(24)	74(24)
Homo/Bisexual IDU	185(6)	25(6)	13(4)
Heterosexual	288(10)	113(26)	120(39)
Other	494(16)	17(4)	13(4)
Age			
1 to 20	103(3)	12(3)	20(6)
20 to 30	666(22)	111(26)	115(37)
30 to 70	2229(74)	304(71)	175(56)
Area†¶			
Metropolitan	2294(77)	181(42)	153(49)
Adjacent	565(19)	178(42)	129(42)
Distant	139(5)	68(16)	28(9)
Medical coverage**			
Insurance	NA	106(25)	83(27)
Medicaid	NA	267(63)	141(45)
None	NA	54(13)	86(28)
Migration†‡			
Home Grown	NA	162(38)	193(62)
Migrated	NA	265(62)	117(38)
Time of diagnosis†‡‡			
Before 01/01/91	1967(66)	225(53)	141(45)
After 01/01/91	1031(34)	202(47)	169(55)

* Only patients with complete data sets, not lost to follow-up and still living in the UMCEC-PC service area were used. Diagnosis of AIDS or HIV are exclusive of each other.

† Proportions of both NC AIDS and UMCEC-PC HIV patient groups were significantly different from those of UMCEC-PC AIDS patients, $p < 0.05$.

‡ Population adjusted proportions of either NC AIDS or UMCEC-PC HIV patient groups were not significantly different from UMCEC-PC AIDS patients.

§ Risk: The risk of HIV exposure is classified as: Homo/Bisexual (homosexual or bisexual), IDU (injectable drug user), Heterosexual (heterosexual exposure), Other (no identifiable risks, birth, or blood product administration).

|| Proportions between the UMCEC-PC HIV patient group and the UMCEC-PC AIDS group are significantly different, $p < 0.05$. Proportions between the NC reported AIDS data and UMCEC-PC AIDS are not significantly different.

¶ Areas: As shown in Figure 1 (metropolitan counties; adjacent counties which touch metropolitan counties; and distant counties which do not¹³⁻¹⁵). Population adjusted proportions of NC AIDS patient group was not significantly different from that of the UMCEC-PC AIDS group.

** Medical coverage: Insurance = has or ever has had insurance, Medicaid = ever applied for Medicaid, None = never applied for insurance or medicaid, NA = data not available. Proportions between the UMCEC-PC HIV patient group and the UMCEC-PC AIDS group are significantly different, $p < 0.05$.

†‡ Migration: Migrated = patient moved to UMCEC-PC service area, Home Grown = patient has lived in the UMCEC-PC service area since 1970 or since birth, NA = data not available. Proportions between the UMCEC-PC HIV patient group and the UMCEC-PC AIDS group are significantly different, $p < 0.05$.

†‡‡ Time of Diagnosis: Before 01/01/91 = AIDS/HIV reported to the state or diagnosed before 01/01/91. After 01/01/91 = AIDS/HIV reported to the state or diagnosed after 01/01/91.

the young parents do not live together but remain friends. They may have sexual encounters with several other young people while in this social structure. This arrangement has become traditional and acceptable because many parents, uncles, aunts, and grandparents were raised in a similar settings. Unmarried couples from both settings often separate after a few years of cohabitation, the children usually remaining with mother or grandmother. An HIV-infected person may enter several such cycles over the years, spreading HIV infection until becoming too ill to continue or being identified as infected and stopping voluntarily. The separated or surviving partner, often HIV-infected, relocates to a new community for new support and anonymity. This repetitious family formation and dissolution amplifies heterosexual HIV transmission.

Limited access to transportation, finances, social resources, medical services, and prolonged travel distances in rural areas often block needed medical care. When patients must relocate closer to services, their resources are further reduced. Although moving appears to make medical care more accessible, it may take months before patients reach their prior level of care. The resulting health care lapses delay therapy and diagnosis of HIV, genital ulcers, tuberculosis and malnutrition, thus accelerating HIV infectivity and symptoms.²¹ Caring for patients in a rural county, even one with limited HIV services, is actually more efficient than relocation.

The Difficulties in Providing Care

Sometimes the Health Department or local Emergency Department are the patient's only source of medical care,

but public transportation in rural North Carolina is limited and patients often must rely on a community or family member for transportation. Because the person with a car often has a minimum wage job and must work during clinic hours, the patient usually must help to pay for gas, maintenance, and car payments. By default, the emergency room gets used for after hours clinic visits, health maintenance and urgent care. As one patient said, "I only live about 20 miles from here but it may as well be on the moon".

One of the most difficult issues for physicians is whether or not they should provide AIDS/HIV services. Many rural clinics feel that they cannot manage HIV-associated therapies or diseases. Further, recognition of HIV disease may be delayed because rural HIV/AIDS patients do not fit the HIV stereotype.^{2,8} Many patients delay access to medical care because of their lack of insurance and the AIDS stigma. Thus, many rural HIV/AIDS patients seek and receive care only in an emergency setting. This leads to poor results, limited patient follow-up, unnecessary expense and wasted resources.

When resources for HIV patients in rural areas are limited, they go to tertiary care centers for primary care problems. This increases the HIV/AIDS flow to urban centers and reduces resources in the tertiary center. The financial losses resulting from large numbers of HIV/AIDS patients may lead tertiary care centers to reduce HIV/AIDS and other medical services.

Failure to provide care for HIV/AIDS patients in rural areas only puts off the inevitable. Most patients can survive even severe AIDS complications for months without therapy, but they languish and often require inpatient terminal care before dying. Tertiary care centers can barely cope with

current AIDS case loads. Therefore, rural medical communities must increase their level of local HIV/AIDS care. Introducing AIDS care into a rural setting is best accomplished by beginning with a small case load. This allows time for physician and community HIV/AIDS education. The level of care can grow with the increasing HIV/AIDS demands, but waiting until it cannot be postponed overwhelms the local system, resulting in unnecessary HIV/AIDS migration, confusion, frustration and expense.

Coordination of tertiary and primary HIV/AIDS care is the key. Tertiary care centers must continue care of complex HIV/AIDS problems. However, when a patient is stable, the patient's physician can supervise therapy at home or in the local hospital. Management of primary care problems, terminal care, and comfort care can be provided through home health, hospice and family. Medicaid and other medical insurance providers must see these transfers as cost saving and rural health providers must be reimbursed when they are able to transfer patients back to the local hospital. Home health services serving urban areas should extend their services rurally.

What can rural communities with limited health care resources do? First, realize that rural HIV problems differ from those of the city. Second, if there is no recognized community HIV/AIDS problem, steps should be taken to prevent sexually transmitted diseases, social problems, and economic factors that enhance prostitution or couple families. Finally, physicians in rural areas need to develop skills in HIV/AIDS care. All of our medical schools offer AIDS tutorials, but real skill is best learned by providing hands on care in the local community. □

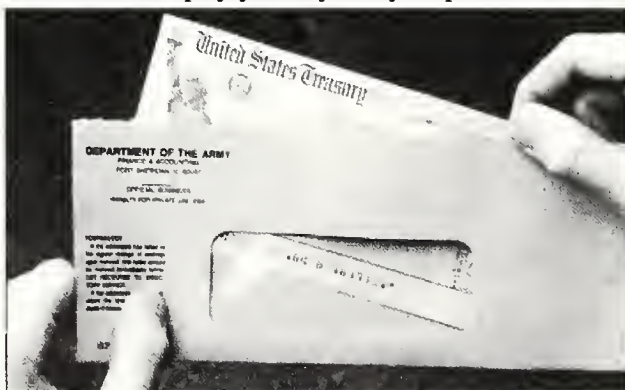
References

- 1 Verghese A, Berk SL, Sarubbi P. Urbans in rure: human immunodeficiency virus infection in rural Tennessee. *J Infect Dis* 1989;160:1051-5.
- 2 Rumley RL, Shappley NC, Waivers LE, Esinhart JD. AIDS in rural eastern North Carolina-patient migration: a rural burden. *AIDS* 1991;5:1373-8.
- 3 Davis K, Stapleton J. Migration to rural areas by HIV patients: impact on HIV-related health care use. *Infect Control Hosp Epidemiol* 1991;12:540-3.
- 4 Whyte BM, Carr JC. Comparison of AIDS in women in rural and urban Georgia. *South Med J* 1992;85:571-8.
- 5 Young RA, Feldman S, Brackin BT, Thompson E. Seroprevalence of human immunodeficiency virus among adolescent attendees of Mississippi sexually transmitted disease clinics: a rural

- epidemic. *South Med J* 1992;85:460-3.
- 6 Quinn TC, Mann JM. The HIV-1 infection and AIDS in Africa. In: Kaslow R, Francis D, eds. *The epidemiology of AIDS*. New York: Oxford Press, 1989.
 - 7 Grey MR. Syphilis and AIDS in Belle Glade, Florida 1942 and 1992. *Ann Int Med* 1992;116:329-34.
 - 8 Montgomery K, Lewis CE. Responses to AIDS: large urban and small rural hospitals. *Hosp Health Serv Admin* 1991;36:525-36.
 - 9 Bobbitt WR, Meriwether R. Summary of North Carolina Acquired Immunodeficiency Syndrome (AIDS) Cases. AIDS reporting system: Surveillance Reports from December, 1984 to January, 1993. HIV/STD Control Branch, Division of Epidemiology, North Carolina Department of Environment, Health and Natural Resources. Raleigh. 1993.
 - 10 Williams DE. North Carolina data on gonorrhea 1988 to 1991, and early syphilis 1985 to 1992 by county, year, sex, age, and race. HIV/STD Surveillance Control Center. Surveillance Program Manager, HIV/STD Control North Carolina Department of Environment, Health and Natural Resources. Raleigh. 1992.
 - 11 Martin SS. Annual North Carolina summary tuberculosis statistical summaries, 1970 to 1991 by county, year, and race. Head, Tuberculosis Control Branch, North Carolina Department of Environment, Health and Natural Resources. Raleigh. 1992.
 - 12 State Information Processes Services (SIPS). Log Into North Carolina (LINC). State Data Center. 1993.
 - 13 Deuel L, Osborne D, Information Specialist. Cecil G. Sheps Center for Health Services Research, NC Rural Health Research Program, University of North Carolina, Chapel Hill, 1993.
 - 14 Office of Management and Budget (OMB). Lists I to IV Statistical Policy Office. OMB Bull No. 93-05. 1993.
 - 15 North Carolina Rural Health Research Program. National rural health policy atlas. Cecil G. Sheps Center for Health Services Research, NC Rural Health Research Program, University of North Carolina, Chapel Hill, 1991.
 - 16 Snuggs MA. BHCDANET Information System. Health Professional Shortage Areas; Basic listing. North Carolina Office of Rural Health. Department of Human Resources, Raleigh, 1992:56-68.
 - 17 Garrett P, Schulman MD. Migrant and seasonal farm workers in North Carolina: a report based on the analysis of existing data. North Carolina Primary Health Care Association, Cary, NC, 1988.
 - 18 SAS institute, Inc. SAS/STAT Software, Release 6.03 Edition. Cary, NC, 1990.
 - 19 Strategic Mapping, Inc. Atlas GIS Release 2.1 Edition. San Jose, CA, 1993.
 - 20 Wawer MJ, Serwaad D, Musgrave SD, Konde-Lule JK, et al. Dynamics of spread of HIV-1 infection in a rural district of Uganda. *Br Med J* 1991;303:1303-6.
 - 21 Cameron DW, Simonsen JN, D'Costa LJ, et al. Female to male transmission of human immunodeficiency virus type-1: risk factors for seroconversion in men. *Lancet* 1989;2:403-7.
 - 22 Ryan White comprehensive AIDS resources emergency (CARE) act of 1990.

SURGEONS: COULD YOU USE AN EXTRA \$9,000?

If you're a resident in surgery, the Army Reserve will pay you a yearly stipend which



could total in excess of \$9,000 in the Army Reserve's Specialized Training Assistance Program (STRAP).

You will have opportunities to continue your education and attend conferences, and we will be flexible about scheduling the time you serve. Your immediate commitment could be as little as two weeks a year, with a small added obligation later on.

Get a maximum amount of money for a minimum amount of service. Find out more by contacting an Army Reserve Medical Counselor. Call:

Collect 919-493-1364

ARMY RESERVE MEDICINE. BE ALL YOU CAN BE.®

Health Watch

VOLUME 54 / NUMBER 10 / OCTOBER 1993

Drug Compliance

ARE YOU GETTING THE MOST OUT OF YOUR MEDICINE?

Debra P. Futrell, Pharm.D.

To answer this question you must first decide whether you are compliant with your medications. What does compliance with medications mean? It means that a person takes their medication as prescribed by their physician. Persons who are noncompliant may skip doses or just take their medicine when they feel they need it rather than as prescribed by their health care provider. If you are noncompliant, you are not getting the full benefits from your medicine. Remember, these are the benefits you pay for.

The Problems of Non-Compliance

Studies show that about one-third of patients take all their medications; another third take some of their medicine; the final one-third don't take any. In addition, between 25% and 90% of outpatients make errors in how they take their medicines. For example, they take medicine too often or not often enough; they take wrong doses, at the wrong times, in the wrong combinations, or for too short a time.

Because of noncompliance, chronic diseases such as high blood pressure, high cholesterol and diabetes may be poorly controlled. People with infections may not get well as

quickly as possible because they stop taking prescribed antibiotics as soon as they feel a little better. And patients sometimes experience preventable side effects because of noncompliance - something that is more than just annoying for the patient, something that may lead to the addition of a second medication. Noncompliant patients sometimes develop secondary illnesses directly related to their improperly treated primary illness. Non-compliance may result in increased costs as well as complications for the patient - and both are preventable.

The Reasons for Non-Compliance

The main reason people do not comply with recommendations is that they are not well informed. They may not be aware of side effects or of food and drug interactions. They may not know when to take their medication. You should always ask your doctor or pharmacist certain questions about all medications you are taking (see box). Answers to these questions will help ensure maximum benefits from your medications. In addition, as a patient you should feel free to discuss any other questions you may have about medication.

It is important for patients to have one primary physician and to get all their medicine at one pharmacy. This way only one physician prescribes medications and you get complete

Dr. Futrell is with the Roanoke Amaranth Community Health Group, Inc., PO Box 644, Jackson, North Carolina 27845.

information about all the medications you are taking. Be sure that there are good lines of communication between your physician and your pharmacist. Remember, you can help by advising your pharmacist of any changes in your medications.

Improving Compliance

Half or more than half of all patients who get prescriptions from their physician do not take the medications correctly. As a result, they do not take full advantage of the medications' ability to improve life and well being. Even more importantly, this non-compliance leads to increased health care expenses and further (potentially avoidable) health

complications. In order to better inform and educate patients about prescribed medications, October is designated "Talk About Prescriptions Month" and the week of October 24-30 as "North Carolina Pharmacy Week." A Pharmacy Fact Day will make a toll free number available for providing answers to pharmacy questions in areas all over the state. Please check in your area for details. The primary goal of campaigns such as "Talk About Prescriptions Month" is to increase public awareness and promote better communication and education regarding prescription and over-the-counter medicines. But don't wait for special campaigns or put off getting answers to your medication questions any longer. Get the most out of your medicines!

Questions all patients should ask about their medicine:

1. *What is the name of each drug product, and what is it supposed to do?*

You should know the names of all your medications, both prescription and nonprescription. If you may see more than one physician, you should always inform all physicians of other medications you are taking —both prescription and nonprescription.

2. *When and how do I take the medication?*

Correct use is very important to ensuring that your medication gives you the help you expect. Questions to ask include: Should I take this medication on an empty stomach or take it with food? Can I consume alcohol while taking this drug?

3. *How long should I take it?*

Serious problems may result from not taking the medication long enough or by continuing too long.

4. *Does this drug product contain anything that can cause an allergic reaction?*

If you patronize one pharmacy, the pharmacist will keep your medical history and can help you avoid allergic reactions to the drug or medication interactions.

5. *Should I avoid alcohol, any other drugs, foods, or activities?*

Prescription medication may interact with other drugs, with certain foods or alcohol to cause harmful effects. Never take a new medication - prescription or nonprescription - without asking your physician or pharmacist if it will interact with your other medications.

6. *What are the side effects of this drug product?*

All medications can cause side effects, but they are not necessarily anything to be concerned about. Your pharmacist and physician can help you understand the side

effects associated with your medication and help you deal with them. If you experience unexplained side effects, contact your physician or pharmacist.

7. *What if I miss a dose?*

Try to follow the directions as closely as possible. However, we all occasionally make mistakes or forget to take our medications. The action to take after a missed dose depends on the drug. Ask your pharmacist about this when you have the prescription filled. You should know the answer to this question before it happens.

8. *Is it safe to become pregnant or to breastfeed while taking this medication?*

Women should consider the possible effects of medications on an unborn child or a nursing baby. Most drugs cause no problems, but some can cause birth defects when the mother takes them early in pregnancy. Also, some drugs pass through a mother's system into breast milk. Therefore, expectant and nursing mothers should consult with their physician or pharmacist before using any prescription or non-prescription medications.

9. *Is there a generic version of the drug product my physician has prescribed?*

Your pharmacist can tell you if there is a generic version of your medication, but your physician must approve the use of generics.

10. *Are there any special storage requirements for my medicine?*

Drug products may lose their effectiveness if stored incorrectly. The bathroom medicine cabinet is not a good place to keep medications because of the moisture and heat. Consult your pharmacist about the proper storage of all prescription and nonprescription drug products.

(adapted from the American Pharmaceutical Association)

WHEN "MY HEART STOOD STILL"

David G. Welton, M.D.

This is the Voice of Experience—a periodic contributor to my Continuing Medical Education Program. My episode is recounted first-hand and is directed to those of you who have not had a "heart attack."

Tuesday, June 8

Following a light supper I rested one hour, then wheeled the "red basket," half-full of newspapers, down our driveway to the curb. I never lifted it. Back in the house, I was short of breath (unusual) so I sat in my recliner until my breathing gradually improved. There soon followed a sensation of very light pressure across the top of the front of my chest; there was no pain. The "pressure" wore off but soon recurred. At this point I recognized the warning sign and asked my wife Elizabeth to take me to the Emergency Room where a cardiogram was promptly made. Dr. R, on call for my cardiologist, Dr. B, said the cardiogram was OK. He was undecided whether to keep me for observation or let me go home. "Keep him" said a very firm voice - Elizabeth's voice! A wise directive, which he followed and which I appreciated. I was put on continuous heart monitor at once. Dr. B saw me the next morning and ordered a Thallium Stress Test.

Thursday, June 10

The hospital has changed in many ways since I took care of patients there - and mostly for the better. But there remain a few constants: "NPO" means nothing by mouth after midnight and being awakened at 5:00am — to be "ready" to go down to Nuclear Medicine at 6:15am. At 7:00am we proceeded with the Stress Test and the Thallium scan. Dr. B reported the significant findings: the scan showed a prior, unrecognized, heart attack that left scar tissue around the conduction mechanism thus aggravating my long-standing arrhythmia. Overnight monitoring showed that my heart stopped several times each night for as long as 4 to 6 seconds. Conclusion: I needed a pace-maker.

Three hours later the pacemaker had been installed by Dr. R. The operation, under local anesthesia supplemented by an intravenous sedative, took about one hour. The pacemaker resides just under the skin below the outer right collarbone. Two electrode wires from it are threaded through the subclavian vein into the right side of my heart; one wire remains in the upper chamber, the second goes into the lower chamber. My right shoulder felt and looked like it had been hit by a truck; two weeks later it was still tender and blue.

Dr. Welton, a past president of the North Carolina Medical Society, is a retired dermatologist residing at 1131 Scotland Ave., Charlotte, NC 28207.

I was kept in the hospital for six more days. Two new drugs were tried but rather severe reactions ensued, and they were stopped. I managed to walk up and down the corridors each day, a total of one-half to one mile. I left the hospital on Thursday afternoon, June 17. Shortness of breath had begun that morning and became gradually worse throughout the day and night.

Friday, June 18

Elizabeth took me to Dr. B's office. X-rays showed "some heart failure." A diuretic (Lasix) was prescribed. Three hours later I was back in the Emergency Room because of extremely severe, vice-like pain across the waist line. After more x-rays the pain gradually lessened and the doctor on call concluded it was intestinal in origin rather than cardiac. I went home about midnight. I began a different diuretic (Bumex) and tolerated it. My weight dropped five pounds.

Sunday, June 20 (Fathers' Day)

Shelley called from London; Scott from Maine; Sandy from Mississippi; Linda and Rex brought Fathers' Day Dinner. How very fortunate I am. Still, I can walk only 10 to 15 steps very slowly and stand up only long enough to brush my teeth before I'm completely out of breath.

Wednesday, June 23

Wheelchair delivered by Mr. W, one of the old guards at Winchester's. This is great. Now I can get around the house without straining my heart and lungs. Still not sleeping well. Weight is down 7 more pounds.

Friday, June 25

Visiting nurse, Patsy A, here today. Very thorough checkup; will come MWF. Talked to Dr. B about the Bumex; he said try it every other day. Took one dose this noon. Ann T brought a large baked turkey: what a treasure!

Right hand numb this morning; right forearm heavy; various paresthesias noted during day. I suspect pressure of the pacemaker on my brachial plexus while recumbent. Will try a small pillow under the shoulder girdle and right forearm during night.

Saturday, June 26

Extra pillows made things worse! Believe I had too many under my head thus pushing the pacemaker down onto the plexus. Need smaller pillows. Today feel absolutely miserable. Weak and depressed. Will discontinue Bumex temporarily. We're getting one large meal each noon from "Friendship Trays" at St. Martin's Church, courtesy of Tia M, a

patient and friend. I discussed mild hypnotics with my pharmacist; he suggested flurazepam. Will try tonight.

Sunday, June 27

Best night's sleep since I've been sick. Feel much better today. Right hand not numb, just a slight tingling of hand and forearm. Last night I used just one pillow under my head. General strength is improving very gradually. I can walk quite a few steps more each day. Shelley called from New York, 8:30am. Expects to arrive here around 4:00pm. We are excited about seeing her.

Sunday, July 4

Rapidly weaning myself from wheelchair. Paresthesias about gone and right shoulder is comfortable. I am able to practice piano 15 minutes twice a day. Tolerating Bumex every other day. Weight constant at 135 lbs. If all goes well I may be "back on my feet" in another four weeks. I am thankful.

Tuesday, July 6

Dr. B says I may try walking one block a day and increase it 25 yards daily. Will try this on his indoor track (too hot outside). At home I await another shipment of strength! Dr. Jeff D, New York City, called to tell me that he had a heart attack and pacemaker installed at same time I did! Jeff and I trained together at Ann Arbor, 1935 to 1939.

Friday, July 9

My pacemaker was installed four weeks ago today. Almost all post-op symptoms have subsided except that I am still unable to sleep on either side; must stay on my back, with a small pillow under right elbow.

Thursday, July 15

This morning I was extremely weak, listless, barely able to move. Similar experience except milder one week ago. Lost two pounds in 24 hours. This would explain the weakness. Dr. B instructed me to take no more Bumex or K-Dur. Will see him July 21.

Wednesday, July 21

Complete checkup, evaluation and adjustment of my pacemaker by Medtronic engineer at Dr. B's this morning. The electrode in right upper chamber was activated. As I understand it, if my own impulse fails, then after 210 milliseconds the implanted electrode will fire. I am told that this will increase my cardiac efficiency up to 25%. It seems remarkable that the pacemaker's action can be programmed from the outside. Dr. B says I'm doing fine.

Wednesday, July 28

During the first two days after the upper chamber electrode was activated I felt many very mild sensations like extra beats and then it all smoothed out and has remained asymptomatic. I do feel stronger, especially when walking.

Wednesday, August 11

My 83rd birthday. Celebrated with all the family.

Monday, August 16

Now doing 11 laps (one-half mile) on indoor track. Starting on the treadmill MWF mornings. Have resumed my weekly piano activity with the men's Bible Class and the Rotary Club. Also weekly rehearsals with the soprano and with the violinist. More reserve strength needed but it is increasing gradually. Dr. B says I'm doing well. Next checkup in six weeks. □

We've been defending doctors since these were the state of the art.



Turn of the century trephine for cranial surgery and tonsillotome for removing tonsils.

These instruments were the best available at the turn of the century. So was our professional liability coverage for doctors. In fact, we pioneered the concept of professional protection in 1899 and have been providing this important service exclusively to doctors ever since.

You can be sure we'll always offer the most complete professional liability coverage you can carry. Plus the personal attention and claims prevention assistance you deserve.

For more information about Medical Protective coverage, contact your Medical Protective Company general agent.

**THE
MEDICAL PROTECTIVE COMPANY**

FORT WAYNE, INDIANA

Stuart Mitchelson
Suite 450, 10722 Carmel Commons Boulevard, Pineville, NC 28226
(704) 541-8020 or (704) 541-8021
(800) 633-2285

Robert Dowdy, J. Michael Luther
Suite 230, 2000 Regency Parkway
Cary, NC 27511, (919) 467-8370
(800) 633-2285



Infant Mortality in Rural North Carolina

Walter L. Shepherd

In late 1989, North Carolina was named the state with the highest infant death rate in the United States in 1988. This designation was based on preliminary data, and Georgia subsequently achieved last place when the final data were released. However, the negative attention associated with a rate of 12.8 infant deaths per 1000 live births stimulated a number of important initiatives, both public and private, and a sizable amount of new funding to address the problems of infant mortality and morbidity and associated issues.

In 1989, another very significant thing occurred in North Carolina - the definition of infant mortality was broadened from a merely medical issue to one that is essentially a social issue with medical consequences. This redefinition makes it now relevant to examine infant mortality in light of existing social problems such as poverty, access, racial disparity, and geographic factors. Consistent with the topical focus of this special issue of the *Journal*, I examine infant mortality in rural North Carolina and compare it with counties classified as primarily urban.

From the Governor's Commission on Reduction of Infant Mortality, 1300 St. Mary's St., Suite 204, Raleigh 27605.

Background

The population of North Carolina, like that of many other states, has undergone a transition. In 1970, 55% of North Carolina's residents lived in rural areas; in 1980, 52%; and, in 1990, 50%. During the same period, those living on farms in North Carolina decreased from 10% to 3% and, finally, to less than 2% of the total population.¹ Nevertheless, from 1987 through 1991, 43% of North Carolina infants were born to mothers living in rural areas and 57% to mothers living in urban counties. Despite our increasing urbanization, many of the problems of rural residence persist—low income, hazardous occupations, low educational levels, and geographic isolation.²

These problems have a definite impact on the health and well-being of the rural population by imposing "a series of barriers to access to maternal and child services—including geographic, financial, and provider availability factors"^{3 p2} that are reflected in the birth outcome differentials of rural and urban residents. What, specifically, have been the differences between mothers and infants in rural and urban areas of North Carolina in terms of birth outcomes and the barriers that must be overcome by pregnant women and their families? What types of initiatives have been implemented to address these issues?

Infant Mortality in Urban and Rural North Carolina

In 1991, North Carolina's infant mortality rate had fallen to 10.9 deaths per 1000 live births - the second lowest rate in its history. However, disparities remain (Table 1). Mortality rates are lower for whites than nonwhites (8.0 compared to 16.9), and the risk of infant death was 19% greater in rural counties of North Carolina than in urban counties. The risk of death was higher for all infants born to rural mothers, but the rural-urban disparity was greater for white infants than for nonwhite infants.

Data abstracted from infant birth (1987-91) and death (1986-90) records show several of the factors associated with poor infant outcome (Table 2). There are rural-urban differences in the percentage of low birthweight (<2500 grams) and very low birthweight (<1500 grams) infants. Rural areas had slightly higher percentages of low birthweight infants (8.3% compared to 7.9% for urban areas) but a slightly lower rate of low birthweight infant deaths. Mothers of rural infants are more likely than those of urban infants to be unmarried, to be less than 18 years of age, and to have not finished high school prior to delivery. Prenatal care was more likely to be inadequate for rural groups compared to urban; however, the differ-

ences were minor between those who received no prenatal care at all. In fact, the mothers of infants who died were actually more likely to have received no prenatal care if they lived in an urban county.

Overall, mortality was higher for infants born to rural mothers. This was

particularly true for rural white infants, whose death rate was 23% higher than for urban white infants. A March of Dimes Birth Defects Foundation analysis of 1988 national rural-urban differences showed that the death rate of white infants was 4.8% higher in rural areas, significantly less than the differ-

ence in North Carolina's rate. The same March of Dimes analysis^{3 p19} found that rural nonwhite infants actually had a rate 6.6% lower than urban nonwhites—the reverse of the case in North Carolina (where it was 3.6% higher).

Resources Available in Urban and Rural North Carolina

Much has been written about the scarcity of resources for health care in rural North Carolina and the United States as a whole. Low population density, greater poverty and uneven health care reimbursement policies contribute to these resource problems. Fewer and smaller hospitals, inadequate numbers of primary care and obstetrical providers, poor or nonexistent transportation systems, and lack of health insurance also impede access of mothers and infants to health services.

In 1990, 82% of North Carolina's counties had a non-specialty, nonfederal hospital within their borders; 100% of the state's 25 urban counties had hospitals, while 76% of rural counties had at least one facility (the rural-urban classification was that used by the North Carolina Rural Economic Development Center, Inc. Urban counties are: Alamance, Alexander, Buncombe, Burke, Cabarrus, Catawba, Cumberland, Davidson, Davie, Durham, Forsyth, Franklin, Gaston, Guilford, Lincoln, Mecklenburg, New Hanover, Onslow, Orange, Randolph, Rowan, Stokes, Union, Wake, and Yadkin; remaining counties are classified as rural). The twenty-five urban counties accounted for 59% of the state's total bed complement and for 65% of the state's obstetric/gynecologic inpatient care. Almost one-third (32%) of the state's rural counties had no inpatient obstetrical services, requiring their residents needing maternity services to leave the county; only 8% of urban counties had no in-county obstetrical care.⁴

A 1991 survey of obstetrical providers (obstetricians, family physicians, and certified nurse midwives) by the Rural Health Research Program at the

Table 1. Comparison of Urban and Rural Infant Mortality in North Carolina, 1991.

	Total	Urban	Rural	Rural/Urban Difference
Total IMR*	10.9	10.1	12.0	+19%
White IMR	8.0	7.3	9.0	+23%
Nonwhite IMR	16.9	16.6	17.2	+4%
Number of Births	102,309	59,570	42,739	
% White 68%	70%	64%		
% Nonwhite	32%	30%	36%	

Source: State Center for Health & Environmental Statistics, 1992

*IMR=Infant Mortality Rate

Table 2. Infant and Maternal Factors Associated with Outcome of Pregnancy in North Carolina

	Live Births, 1987-1991		Infant Deaths, 1986-1990	
	Urban	Rural	Urban	Rural
Total				
Low Birthweight	7.9%	8.3%	65.4%	63.5%
Very Low Birthweight*	1.6%	1.7%	52.1%	49.6%
Unmarried Mother	25.5%	31.4%	40.2%	43.5%
Less than 18 Years Old	5.5%	7.2%	9.7%	11.2%
No High School Education	20.5%	26.4%	29.8%	35.9%
Inadequate Prenatal Care	20.7%	27.7%	30.3%	34.7%
No Prenatal Care	1.6%	1.8%	9.8%	9.2%
Smoked During Pregnancy**	19.8%	21.7%	26.4%	28.4%
White				
Low Birthweight	6.0%	6.2%	59.6%	58.6%
Very Low Birthweight*	1.1%	1.1%	44.3%	42.7%
Unmarried Mother	12.2%	14.3%	19.8%	20.6%
Less than 18 Years Old	3.6%	4.9%	6.6%	8.8%
No High School Education	17.8%	23.1%	27.7%	33.0%
Inadequate Prenatal Care	14.9%	19.4%	22.5%	25.9%
No Prenatal Care	0.9%	0.9%	6.0%	5.3%
Smoked During Pregnancy**	21.0%	24.0%	31.1%	32.3%
Nonwhite				
Low Birthweight	12.5%	12.2%	72.0%	68.3%
Very Low Birthweight*	3.0%	2.7%	61.0%	56.3%
Unmarried Mother	56.9%	62.4%	63.2%	65.6%
Less than 18 Years Old	9.8%	11.2%	13.3%	13.5%
No High School Education	26.8%	32.4%	32.2%	38.9%
Inadequate Prenatal Care	34.3%	42.5%	39.2%	43.3%
No Prenatal Care	3.2%	3.4%	14.2%	12.8%
Smoked During Pregnancy**	17.2%	17.6%	21.5%	24.5%

*Very Low Birthweight is a subset of Low Birthweight

**Smoking data for 1988-91

Source: State Center for Health & Environmental Statistics, 1993

University of North Carolina at Chapel Hill found that 76 of the state's 100 counties had obstetrical providers (88% of urban counties and 72% of rural counties). Of those counties with obstetrical services, 10 relied solely upon a family physician (9% of urban counties and 15% of rural counties). As expected, most of the family physicians doing obstetrics were located in rural counties, but only 31% of the state's obstetricians and 31% of the state's certified nurse midwives had rural practices.⁵ About 43% of North Carolina's births occur to residents of rural counties.

In addition to the lack of hospitals, rural residents have problems related to health insurance. Relatively few families (less than 40% in 1991) have third-party coverage or use health maintenance organizations; more than 31% rely on Medicaid, almost one-fourth are self-pay (24%) or charity cases (2%). Medicaid and self-pay/charity supported 56% of hospital obstetrical services used by rural families in 1991.

Programs and Activities to Reduce the Rural/Urban Gap

Although much still needs to be done, North Carolina has responded to its statewide problem of infant mortality and has been addressing the issues associated with rural-urban differences in outcome. The North Carolina General Assembly and various state agencies have provided generous resources and appropriations, but the medical community, private non-profit organizations, and the corporate sector have also emerged as major participants.

North Carolina established the nation's first Office of Rural Health. Initially involved in developing rural health centers staffed by physician assistants and nurse practitioners, this program has evolved to play a major part in many of the state's maternal and child health programs. It provides recruitment and placement services for rural and underserved areas, assistance in defining and redefining the roles of rural hospitals, and technical assistance

to rural clinics and communities.

Working closely with the Office of Rural Health and Resource Development is the North Carolina Primary Care Association, a private, nonprofit group active with federally funded migrant and community health centers. Many rural clinics and centers benefit from the National Health Service Corps, a federal scholarship program that encourages medical students and other trainees to commit to rural practices in return for tuition assistance.

One initiative that has gained national attention is the Rural Obstetric Care Initiative program (ROCI), a program to recruit and retain rural obstetric practitioners. It was initiated through the cooperative efforts of the medical community and the General Assembly to subsidize the malpractice premiums of obstetrical providers in rural and medically underserved communities. It has grown from 52 physicians in 21 counties in 1989 to 177 physicians and 13 certified nurse midwives in 59 counties now. Other health resource-oriented activities include a nurse midwife recruitment effort in the Office of Rural Health and Resource Development, a nurse midwifery practice site program funded by the State Division of Maternal and Child Health, and a certified nurse midwifery training program at East Carolina University.

In order to provide greater access for pregnant women, Medicaid has been expanded to cover patients with incomes up to 185% of the federal poverty level and the amount of reimbursement to participating providers has been increased substantially. In addition, the major medical centers in the state offer high risk maternity clinics and have extensive perinatal outreach services available to both rural and urban women. The Area Health Education Centers and the state's medical schools are promoting rural practice and primary care and provide rural training opportunities for students and residents.

The State Division of Maternal and Child Health has expanded its women's preventive health services, including family planning and preconceptional health. In partnership with the State Division of Medical As-

sistance and the Office of Rural Health and Resource Development, it has implemented the nationally recognized Baby Love program, which provides maternity care coordination to high-risk pregnant women throughout the state. This has been supplemented recently by a Maternal Outreach Worker initiative that utilizes trained workers to provide services and education to pregnant women and infants in their own communities. The Women, Infants, and Children's Program (WIC), part of the Division of Maternal and Child Health, provides nutritional services and information to pregnant women and has expanded both its scope and its services through a combination of state and federal funding.

North Carolina's private foundations, led by the Kate B. Reynolds Health Care Trust, have encouraged and funded both private and public efforts to address maternal and child health. Education, children, and maternal and infant services, especially in rural areas of the state, have emerged as priority areas for funding. The investment of these foundations has given birth to many programs and activities, including the Maternal Outreach Worker project.

New partnerships have emerged. A statewide informational and educational campaign, *First Step*, brings together the resources of the State Division of Maternal and Child Health, the State Division of Medical Assistance, the March of Dimes Birth Defects Foundation, and the Governor's Commission on Reduction of Infant Mortality/The North Carolina Healthy Start Foundation. *First Step* operates a toll-free hotline, distributes public service announcements to the state's media, and helps pregnant women gain access to local resources. In the winter of 1992, a task force formed by the North Carolina Obstetrical and Gynecological Society and the Governor's Commission on Reduction of Infant Mortality began developing a plan to ensure that all pregnant women in North Carolina have an identifiable obstetrical home, regardless of where they live. The task force, comprised of representatives from public health, rural health, re-

gional medical centers, medical schools, the N.C. Academy of Family Physicians, and the state chapter of the American College of Nurse Midwives, is focusing its attention on improved access to and utilization of prenatal care.

Finally, the Governor's Commission on Reduction of Infant Mortality, created in 1989, has representatives from government, education, religion, health care, business, advocacy groups, parents, and elected officials. It has developed a strategic plan, encouraged establishment of local maternal and child health coalitions, assisted with legislative and public policy initiatives and public education, and enlisted the assistance of business leaders, religious groups, and professional and civic organizations. The businesses of North Carolina, most notably Glaxo, Inc., Burroughs Wellcome, Burlington Industries, and Sara Lee, have formed working partnerships with the Commission, which, through The North Carolina Healthy Start Foundation, have been able to direct funding and other resources to almost three-fourths of the state's 100 counties.

Conclusions

Mothers in rural counties face obstacles to necessary health services because there are fewer obstetrical providers and hospital facilities available in rural communities, and because rural families often have to rely on Medicaid or self-pay/charity to cover birth-related expenses. Furthermore, rural mothers are more likely than their urban counterparts to be unmarried, to have less education, and to be less than 18 years of age. Prenatal care is worse for rural mothers, although urban mothers are slightly more likely to have received no prenatal care. In a study examining rural residence and poor birth outcome in Washington State, Larson et al. concluded that rural residence was not associated with greater risk, but that rural residents did have less adequate prenatal care. They did not find any significant racial differences between urban and rural residence.⁶ Data from

North Carolina show that white infants in rural settings have worse outcomes than white infants in urban settings (rural IMR=9.0; urban IMR=7.3), while nonwhite infants have a much higher risk regardless of residence (rural IMR=17.2; urban IMR=16.6).

North Carolina has responded to reports of its excessive infant mortality by providing a number of programs and activities, some designed to reduce the disparity that between urban and rural communities. Legislative initiatives, foundation funding, public health and rural health activities, and collaborative efforts among nontraditional groups

are in place. The early success of these programs has decreased North Carolina's infant mortality rates to the lowest in its history. □

Acknowledgments

Data presented in the text and the tables were obtained from the State Center for Health and Environmental Statistics, the North Carolina Medical Database Commission, and the Rural Health Research Program at the University of North Carolina at Chapel Hill, and subsequently processed by the Governor's Commission on Reduction of Infant Mortality.

References

- 1 Bureau of the Census. Population and housing. U.S. Department of Commerce, 1990.
- 2 Ahearn MC. Health care in rural America. Washington, DC: US Department of Agriculture, 1978:2.
- 3 March of Dimes Birth Defects Foundation. Infant survival in rural America. White Plains, NY: August, 1991.
- 4 State Center for Health and Environmental Statistics. Health facilities data book: hospital summary report, 1990 data. Raleigh: October, 1991.
- 5 Fondren LK, Ricketts, TC. North Carolina obstetrics access and professional liability study. Chapel Hill: Cecil G. Sheps Center for Health Services Research, 1991.
- 6 Larson, EH, Hart, LG, Rosenblatt, RA. Rural residence and poor birth outcome in Washington State. *J Rural Hlth* 1992;8:162-170.

MOORE REGIONAL HOSPITAL

At Moore Regional Hospital, a 400-bed, state-of-the-art referral center, we offer a friendly, small town atmosphere, moderate climate, and collegial relationships among a full range of medical and surgical specialty services including Open Heart. We're located in Pinehurst, one of the finest resort areas in the country, providing golf, tennis, boating and more.

Neonatologist

We are seeking a board-certified Neonatologist for a hospital-based position. Will establish and direct Level II Neonatology service. We enjoy an extremely cooperative relationship with the Level III nursery at UNC Hospitals in Chapel Hill, NC.

And, just as you'd expect, we offer a competitive compensation and benefits package. Please send resume to: Derry Walker, Vice President, Moore Regional Hospital, P.O. Box 3000, Pinehurst, NC 28374. No agency referrals please.



MOORE
REGIONAL
HOSPITAL

PINEHURST
NORTH
CAROLINA



An Equal Opportunity Employer.

Reducing the Burden of Chronic Disease in Rural North Carolina

Georjean Stoodt, M.D., M.P.H., and Eugene J. Lengerich, V.M.D., MS

The burden of chronic disease is great throughout North Carolina and poses special challenges for rural areas with their low population density, resource constraints, and shortage of health care providers. Nonetheless, many of North Carolina's rural communities are actively and creatively involved in combatting chronic diseases. In this paper we review the burden of nine important chronic diseases in North Carolina, explore the differences between rural and non-rural mortality rates, present information about the self-reported clinical preventive practices and attitudes of primary care physicians, and describe several chronic disease prevention and control initiatives underway in North Carolina.

The Toll of Chronic Disease

In 1991, nine chronic diseases (stroke; coronary heart disease; diabetes; chronic obstructive pulmonary disease; lung, breast, cervical, or colorectal cancer; chronic liver disease and cirrhosis) were responsible for the deaths of 29,691 North Carolinians (see Table

1). These nine chronic conditions accounted for 50% of all North Carolina deaths.

Of course, mortality is just the tip of the iceberg of chronic disease impact. There is also tremendous morbidity which results in reduced quality of life, diminished functional status, disability, days absent from work, and increased medical and hospital costs. According to the N.C. Citizens' Survey, last conducted in 1984, 34% of adults age 18 and older reported one or more chronic diseases.¹

Modification of risk factors and screening for early disease could prevent many deaths from these diseases. In 1986, the age-adjusted combined mortality rate for the nine conditions in North Carolina was 451.7 per 100,000, twelfth highest in the US.² The lowest achieved state rate is Hawaii's, at 304.7 per 100,000. By reaching that rate in North Carolina, we would save 9,301 lives, a 32.5% reduction in mortality. When compared with a hypothetical, risk-eliminated mortality rate of 224.4 per 100,000, North Carolina shows a 50% excess, or 14,204 excess lives lost. The risk-eliminated mortality rate is an estimate of the US mortality rate that could be obtained by eliminating the greatest single population-attributable risk factor for each of the nine diseases.

Most behavioral "risks" are presumed to be amenable to "low-tech" interventions, but prevalence figures remind us how pervasive they are. According to the 1991 Behavioral Risk

Survey, 61% of North Carolina adults have a sedentary lifestyle (less than twenty minutes of physical activity done fewer than three times a week); 23% are obese (body mass indexes above 27.2 kg/m² for females and 27.7 kg/m² for males); 24% are current regular smokers; 8% are binge drinkers (five or more drinks on an occasion, once or more during past month); and 3% are chronic drinkers (average of 60 or more alcoholic drinks a month). Our use of early detection clinical tests was somewhat better: 66% of respondents had had their blood cholesterol checked in the last 5 years; 70% of women aged 40 or older had ever had a mammogram; and 84% of women with an intact cervix uteri had had a Papsmear within the past two years.³

Chronic Diseases in Rural North Carolina

The magnitude of the chronic disease burden in North Carolina is obvious. But what about differences between rural and urban North Carolina? What can we say about the mortality burden? And what is being done to address these killer diseases in rural North Carolina?

North Carolina had been classified as a predominantly rural state until the 1990 census found that more than half the population (3,335,570 vs. 3,293,067) lived in urbanized areas or in towns of more than 2500 inhabitants outside urbanized areas. This tilted the

From the Division of Adult Health Promotion, Department of Environment, Health and Natural Resources, P.O. Box 27687, Raleigh NC 27611-7687.

classification from “predominantly rural” to “predominantly urban”.⁴ However, it is still the case that 82 of the 100 counties—the county being the level of government in which North Carolina rests the majority of public health responsibility and authority—are “predominantly rural,” and 22 report their entire population as rural.

In 1991, North Carolina’s age-adjusted mortality for the nine chronic diseases was 408.6 per 100,000 (Table 1), somewhat lower than the rate in 1986 (451.7 per 100,000). But in 1991, the rural rate was 419.6 and the urban, 395.7, and the mortality rate for 6 of the 9 diseases was greater in rural than in urban counties. The greatest difference was for coronary heart disease with a mortality rate of 206.8 in rural counties and 186.0 in urban.

Preventive Health Practices of North Carolina Doctors

Each biennium, local health departments in North Carolina undertake a “community diagnosis” or community health assessment, wherein they examine local health status data, local health care resources, and problem areas identified by residents. Using this picture of a county’s health status and needs, they design strategies to meet needs. These community diagnoses are shared with the State Health Director who then works with the legislature to initiate new health policies and services. In the late 1980s, chronic diseases and their associated risk factors began to be recognized as areas in great need of public health attention, but resources for health promotion/risk reduction, for chronic disease detection and control, and for preventive clinical services and primary care continue to be scarce. Nationally, only 3% of state public health agency expenditures in 1989 went for activities related to chronic disease. In North Carolina, the figure was 4%.⁵

Because 80% of the US population sees a doctor each year, physicians are critical partners in chronic disease prevention and control, and an important

source of health education and preventive services. Indeed, individual and collaborative efforts of both medical and public health workers are essential to the prevention and control of chronic disease.⁶ Therefore, in 1991, North Carolina primary care physicians serving adults were surveyed to assess aspects of their efforts to prevent chronic diseases. Self-report methodologies tend to overestimate actual performance of desirable practices, but the results provide some useful insights about provision of clinical preventive services by North Carolina physicians.

Nearly all respondents (96%) agreed that primary-care physicians should help asymptomatic patients reduce behavioral risk factors (tobacco smoking, alcohol misuse, drug abuse, inappropriate diet and eating habits, and inappropriate exercise habits).⁷ Yet physicians provide routine counseling or referral for risk reduction for only 51% of patients who smoke, 53% of patients who abuse drugs, 35% of patients who abuse alcohol, 29% of patients who do not exercise regularly, and 19% of patients with diet/nutrition problems. National objectives for the year 2000 set 75% as the desired target in all these areas, except for physical activity, which is 50%.⁸

Physicians were asked whether they or other care providers in their offices were well prepared to assist

patients with modifying risk behaviors; 86% said they were somewhat or well prepared to help with smoking; 77% with alcohol; 58% with drug abuse; 86% with diet/nutrition problems; and 82% with patients who do not exercise regularly.⁷ Those describing themselves as “very well prepared” ranged from 13 to 37%, according to the risk factor in question, and those who felt “somewhat prepared” ranged from 45 to 56%.

When asked how successful they or others in their office had been in helping willing asymptomatic patients achieve change in each area, the percentage who had been “very successful” ranged from 1% to 6% according to the risk factor; those reporting themselves as “somewhat successful” ranged from 37% to 64%; and the proportion who said they were very unsuccessful ranged from 5% to 20%. When asked about whether they recommended mammograms and Pap smears to asymptomatic female patients, 99% reported that they did, although with considerable variation in the screening intervals recommended.

Public Health Initiatives in North Carolina

In contrast to many states, North Carolina has a local public health presence

Table 1. Mortality Rates* for Nine Chronic Diseases in North Carolina, 1991

CAUSE	STATEWIDE	RURAL	URBAN
Stroke	61.6	63.4	59.5
Coronary Heart Disease	197.5	206.8	186.0
Diabetes	20.3	21.0	19.5
Chronic Obstructive Lung Disease	28.4	27.6	29.6
Lung Cancer	55.2	54.2	56.6
Breast Cancer	27.8	27.8	28.1
Cervical Cancer	3.3	3.8	2.8
Colorectal Cancer	18.7	18.9	18.4
Cirrhosis	9.2	10.1	8.2
TOTAL	408.6	419.6	395.7

* Deaths per 100,000 population, age-adjusted to the 1980 population distribution of the United States.

in every county, some as part of a two to four-county district. The programs and initiatives developed through this presence operate within a framework that encourages local innovation and flexibility in chronic disease prevention and control. This framework recognizes:

- The responsibility and authority of local government for public health services at the county level.
- The need for multi-disciplinary, multiple-strategy approaches, including individual clinical and educational interventions, community education and awareness interventions, and policy interventions to influence social practices and norms.
- The diversity of local priorities and readiness for action on a particular disease or risk at a particular point in time.
- The diversity of local resources.

Diabetes Control Program. In 1986, North Carolina's state health agency was funded by the Centers for Disease Control and Prevention to develop a state-based Diabetes Control Program (DCP). Because of the high prevalence of diabetes in Eastern North Carolina, particularly its rural areas, Eastern North Carolina health departments were invited to apply. Three were selected for funding: Pamlico, Martin-Tyrrell-Washington, and Halifax Counties. The projects aim to provide quality diabetes education to county residents in order to reduce complications, disabilities and premature mortality from diabetes.

General practitioners have referred 42% of the participants, family practitioners 23%, internists 31%, and endocrinologists 1%. Forty-two percent of participants are 65 and older, 60% are black, 71% female; 46% have gross family incomes under \$10,000 per year, and 19% under \$5,000. Twenty-five percent have an eighth grade education or less. Forty-three percent have no medical insurance coverage of any type.

Participants undergo an intensive self-care, self-management instruction program focused on controlling the disease and reducing risk factors and

complications. They receive individual education reinforced through group classes for patients and family. Many patients also receive diabetes monitoring services. The physician's orders for monitoring and for therapeutic diets guide the public health staff and assist the physician and patient in managing the disease.

The Program seeks to increase or improve community resources necessary to support good diabetes care and to help residents with diabetes. Examples of Program activities include awareness and educational events such as "Stampede in the Park" held at Martin Community College, provision of diabetes classes at a local textile factory, slide presentations and drawings of supplies for diabetics at community events such as the Tyrrell County Scuppernon Festival, community educational sessions like "Diabetes: A Team Approach" sponsored in Halifax County, and a demonstration of how to prepare for and enjoy holidays while maintaining diabetes control. Despite the current lack of funds to expand the existing program, many other rural health departments have begun to build the capacity and knowledge of their existing staffs and to assess community readiness to organize and support a local diabetes control program. The Diabetes Control Program and East Carolina University, provide some training for nurse-nutritionist teams from local health departments.

The Diabetes Control Program also informs health professionals and community leaders about the burden and impact of diabetes in the county and state. In early 1993, county-specific fact sheets enumerating or estimating the mortality, prevalence, complications, and costs of diabetes were distributed to local health departments and community college libraries.⁹ Between 197,500 to 292,400 North Carolinians are estimated to have diabetes and the annual cost of hospitalizations related to diabetes is estimated at \$486,305,371, or \$73 per citizen.

Statewide Health Promotion Program. In 1987, after two years of study, the NC General Assembly charged the state

"Joint and
complementary
efforts of the
public health and
medical
practitioners hold
great promise to
reduce the
burden of chronic
diseases in North
Carolina."

public health agency with developing a statewide, locally delivered health promotion program to reduce leading causes of death. Common risk factors (obesity, dietary fat, cholesterol, tobacco use, and sedentary lifestyle) are addressed through community-based activities, tailored to local needs and the resources available. Strategies used to reduce these health risks in communities include media intervention, training and education of health professionals and others in the community, revising local policies, providing health promotion education and services at worksites, churches, and others. Especially targeted are populations at highest risk and those of low socioeconomic standing who may not have ready access to health promotion services otherwise.

Project ASSIST. Tobacco use is the leading preventable cause of death in North Carolina and in the nation. In 1989, smoking contributed directly to an estimated 11,227 North Carolina deaths (20% of all deaths in the state).¹⁰ Smoking-attributable deaths are largely due to cardiovascular disease (including stroke), cancer (especially of the lung) and respiratory disease. In 1991, North Carolina received National Cancer Institute funding to carry out Project ASSIST, the "American Stop Smoking Intervention Study." Project ASSIST is a partnership of the American Cancer Society, state and local health depart-

ments and voluntary organizations (including the North Carolina Medical Society) dedicated to preventing deaths and health problems attributable to tobacco use. In North Carolina, it focuses on helping children and adolescents, pregnant women and tobacco users who want to quit. In addition to the statewide Project ASSIST, twenty-three counties have formed ten local coalitions to plan intervention with health care systems and providers, schools, worksites, and community groups to reduce smoking prevalence. The coalitions, formed under leadership of county Public Health Departments and area American Cancer Society volunteers, involve a broad array of some 271 organizations statewide. Physicians have been and continue to be a vital force in all efforts to eliminate the harmful use of tobacco by North Carolinians.

NC Breast and Cervical Cancer Control Program. In 1992, with funding from the Centers for Disease Control and Prevention, the state public health agency began a statewide effort to promote and provide early detection services for breast and cervical cancer to

women with incomes under 200% of the federal poverty level. Taking a comprehensive approach, the NC Breast and Cervical Cancer Control Program emphasizes screening and follow-up to prevent and control these two chronic diseases, public education, professional education, quality assurance, surveillance, evaluation, coalition formation, and statewide planning activities. There is an emphasis on reaching underserved women age forty and above, particularly minority women. In its first year of operation, 83 of North Carolina's 100 counties provided or arranged screening and follow-up services to women in their area. The Division of Adult Health Promotion has funded the teaching of adult health physical assessment to public health nurses, the predominant clinical work force in local public health departments and supported radiologists and their teams in refining their mammography skills.

LIFE (Lifestyle Improvement for Employees). In the spring of 1993, in an attempt to reach high risk, underserved, low income populations through health promotion at the worksite, a new initiative, LIFE (Lifestyle Improvement for

Employees), was launched in 13 health departments. Risk reduction through nutrition, exercise, and smoking cessation interventions is being carried out by local public health agencies working with small businesses and industries (fewer than 100 employees).

Conclusions

Partnerships to address the long-term prevention and control of chronic disease clearly continue to be needed in North Carolina. The shortage of medical providers in rural areas is often paralleled by limited resources of the local public health agency. Joint and complementary efforts of the public health and medical practitioners hold great promise to reduce the burden of chronic diseases in North Carolina. □

Acknowledgments

The assistance of Ken Kaufman, Ph.D. and Buzz Nelson, MBA, statisticians at the State Center for Health and Environmental Statistics is gratefully acknowledged.

References

- 1 NC Citizens Survey. Physical health and health care in North Carolina: a review of survey data from 1976-1984. Raleigh: Office of State Budget and Management.
- 2 Hahn RA, Teutsch SM, Rothenberg RB, Marks MS. Excess deaths from nine chronic diseases in the United States, 1986. JAMA 1990;264:2654-9.
- 3 NC Division of Adult Health Promotion. Behavioral risk factor surveillance system. Raleigh, 1991.
- 4 1990 Census Data. State Library, Raleigh, NC.
- 5 Association of State and Territorial Chronic Disease Program Directors. Reducing the burden of chronic disease: needs of the states. Public Health Foundation, 1991.
- 6 Centers for Disease Control. Counseling practices of primary-care physicians - North Carolina, 1991. MMWR 1992; 41:565-8.
- 7 Division of Adult Health Promotion. North Carolina survey of physician health services, 1991. Raleigh, 1991.
- 8 Public Health Service. Healthy people 2000: national health promotion and disease prevention objectives. Washington, D.C., 1991.
- 9 Diabetes Control Program. Diabetes data in North Carolina. N.C. Division of Adult Health Promotion, Raleigh, 1993.
- 10 NC Department of Environment, Health and Natural Resources. Project ASSIST for a healthier North Carolina: site analysis. Raleigh, 1992.



*Full-term baby
born 8lbs. 2oz.*



*Premature baby
born 3lbs. 3oz.*

Helping Hands

North Carolina's infant mortality statistics are alarming. Expectant mothers must have medical care and counseling. Glaxo has joined with organizations across the state to help provide these resources.

There's still work to do, but healthy babies are the key to America's future, and that's a good place to start.

Glaxo

A Pharmaceutical Research Company

Infections Acquired in the Great Out-of-Doors of North Carolina

David J. Weber, M.D., M.P.H.

Leisure pursuits in rural venues - hunting, camping and hiking - are ever more popular, but they bring people into close contact with wild animals, arthropods, and potentially contaminated water supplies.¹ Pets are also a source of exposure to "wilderness" diseases since they may become infested with ectoparasites carrying infectious agents (such as ticks infected with *Rickettsia rickettsii*), they may become infected themselves while foraging (for example, with rabies), or they may be a natural reservoir of organisms pathogenic for man (such as *Pasteurella multocida* and *Toxoplasma gondii*). Occupations which expose people to farm or wild animals, or to the wilderness increase the risk of acquiring a zoonotic or environmental pathogen. Farming, animal husbandry, animal control, care, and research, and veterinary medicine are occupations that make workers especially vulnerable because of direct contact. Finally, travelers to remote and rural areas may be exposed to diseases rarely acquired in the United States (such as malaria).

Table 1 summarizes the more important zoonotic and environmental diseases that may be acquired by exposure to the North Carolina wilderness. Readers interested in more comprehensive information are referred to text-

books of infectious diseases,^{2,3} monographs and review articles on zoonotic diseases⁴⁻⁹ and pet-associated illnesses,¹⁰⁻¹² and the excellent and inexpensive review of communicable diseases published by the American Association of Public Health.¹³

Transmission of Zoonotic and Environmental Infections to Humans

More than 175 infectious diseases of animals can be transmitted to humans. Most are transmitted by inhalation, ingestion of contaminated food or water, or contact. Contact may be direct (such as in contamination of an open wound), indirect (for example, contact with a contaminated animal hide), or by droplet. Transmission of animal pathogens may occur through bites and by a variety of arthropod intermediates, especially ticks, mosquitoes, and biting flies. Transmission may also occur by inadvertent contact or ingestion of excretory products and carcasses that contaminate soil or water.

Mosquito and Tick Borne Diseases

More than 25 vector-borne infections have been described in the United States.¹⁴⁻¹⁶ During the last decade they have become an increasing health bur-

den for residents of North America. Three arthropod-borne forms of viral encephalitis may be acquired in North Carolina: California encephalitis, Eastern Equine encephalitis, and St. Louis encephalitis. All are transmitted by mosquitoes and all are relatively uncommon (between 1964 and 1989 there were 38 cases of California encephalitis, 7 cases of Eastern Equine encephalitis and 3 cases of St. Louis encephalitis in North Carolina).¹⁴ The diagnosis of mosquito-borne encephalitis should be considered in patients who develop aseptic meningitis or encephalitis during the spring or summer. Serological confirmation of the diagnosis may be obtained from the state Public Health Laboratory; no specific treatment is available.

California encephalitis (a bunyavirus) is transmitted by *Aedes melanion* mosquitoes. Risk factors for acquisition include the presence of mosquito breeding locations (discarded containers or tires or treeholes on the property) and residence in or near a forest. Fewer than 1% of infections are clinically apparent. Symptomatic infections range from a simple, febrile illness to encephalitis or aseptic meningitis. The disease is more severe in the young and old, but overall mortality is under 0.5%.

Eastern Equine encephalitis (an alphavirus) forms an enzootic cycle between *Culiseta melanura* mosquitoes and birds. Humans and horses are accidental and dead-end hosts. There is

From the Division of Infectious Diseases, Department of Medicine, University of North Carolina, Chapel Hill, NC.

Table 1 - Recognition and Management of Common Diseases Acquired in the Wilderness

Disease	Agent	Reservoir	Transmission	Diagnosis	Treatment
Anthrax	<i>Bacillus anthracis</i> (Gram pos Bacterium)	Farm animals, soil	Inhale, ingest spores; contact animals/products	Gram stain, culture	Penicillin G
Blastomycosis	<i>Blastomyces Dermatitidis</i>	Soil	Inhale spores in dust	Fungal stain and culture	Ketoconazole or Amphotericin B
Brucellosis	<i>Brucella</i> species (Gram neg Bacterium)	Farm Animals, Dogs (rarely)	Inhale, ingest, or contact. Raw milk, cheese	Serology; blood culture	A tetracycline plus gentamicin or rifampin
California Encephalitis	Bunyavirus	Small animals	Mosquito	Serology	Supportive
Campylobacteriosis	<i>Campylobacter jejuni</i> (Gram neg Bacterium)	Animals (cattle & poultry)	Ingest contaminated food & water	Stool culture on selective media	A fluoroquinolone or an erythromycin
Capnocytophaga canimorsis infection	<i>Capnocytophaga canimorsis</i> (Gram neg Bacterium)	Oral flora, dogs, other animals	Animal bite	Blood culture; Gram stain of buffy coat	Penicillin G
Cat Scratch Disease	<i>Afipia felis</i> or <i>Rochalemaea henselae</i> (Bacteria)	Cats, other animals	Animal scratch or bite	Clinical syndrome; lymph node histology	Fluoroquinolones
Cryptococcosis	<i>Cryptococcus neoformans</i> (fungus)	Soil	Inhale	Cryptococcal antigen; Fungal stain; culture	Amphotericin B or Fluconazole
Cryptosporidiosis	<i>Cryptosporidium</i> species (coccidian protozoan)	Farm animals, dogs, cats	Contaminated water; fecal-oral	Stool exam with special stains	Supportive
Eastern Equine Encephalitis	Alphavirus	Birds	Mosquito	Serology	Supportive
Ehrlichiosis	<i>Ehrlichia chaffeensis</i>	Unclear	Probably ticks	Serology	A tetracycline
Erysipeloid	<i>Erysipelothrix rhusiopathiae</i>	Animals, seafood	Contact raw meat or seafood	Wound or blood culture	Penicillin G or Ampicillin
Giardiasis	<i>Giardia lamblia</i> (flagellate protozoan)	Many domestic and wild animals	Ingest contaminated water; fecal-oral	Stool exam; intestinal biopsy	Metronidazole or quinacrine
Histoplasmosis	<i>Histoplasma capsulatum</i> (fungus)	Soil (bird or bat excreta)	Inhale airborne conidia	Fungal stain; culture; biopsy	Ketoconazole or Amphotericin B
Leptospirosis	<i>Leptospira interrogans</i> (spirochete)	Wild & domestic animals (rats, dogs, cattle, swine)	Inhale; contact water or soil contaminated by animal urine	Blood culture; urine culture; serology	Penicillin G
Lyme Disease	<i>Borrelia burgdorferi</i> (spirochete)	Deer; wild rodents; ticks	Tick	Serology	A tetracycline; penicillin; ceftriaxone
Pasteurellosis	<i>Pasteurella multocida</i> (Gram neg Bacterium)	Normal oral flora of many animals	Animal Bite	Gram stain; wound culture	Penicillin G
Psittacosis	<i>Chlamydia psittaci</i> (chlamydia)	Birds	Inhale	Serology	A tetracycline
Q Fever	<i>Coxiella burnetii</i> (rickettsia)	Farm animals; some wild animals; ticks	Inhale; contact infected animals	Serology	A tetracycline
Rabies	Rhabdovirus	Wild animals; bats	Animal bite; saliva in wound; inhale (bats)	Immuno-stain of neck skin; serology	Human rabies immune globulin; Human diploid cell vaccine
Rocky Mountain Spotted Fever	<i>Rickettsia rickettsii</i> (rickettsia)	Ticks; small animals	Tick	Serology; Immuno-stain of skin lesion	A tetracycline
Salmonellosis	<i>Salmonella</i> species (Gram neg Bacterium)	Animals	Ingest contaminated food or water	Stool or blood culture	Supportive if mild; Fluoroquinolones or cefotaxime or ceftriaxone if severe
Sporotrichosis	<i>Sporothrix schenckii</i> (fungus)	Soil, decaying vegetation	Inhale; wound contamination	Fungal stain; culture	Potassium iodide; Amphotericin B
St. Louis Encephalitis	Flavivirus	Birds	Mosquito	Serology	Supportive
Tularemia	<i>Francisella tularensis</i> (Gram neg Bacterium)	Rabbits, other animals	Inhale, ingest, contact infected animal; cat bites; tick	Serology	Streptomycin; gentamicin

no evidence for an increased risk of human infection from contact with infected horses (except with infected brain or tissues during necropsy). Risk factors for acquisition include residence in or exposure to swamps in endemic locations. Eastern Equine encephalitis is an often serious neurologic disease. Onset may be abrupt with headache, fever, myalgias and vomiting; convulsions, rapid deterioration of mental status, and focal neurologic signs may follow. Mortality exceeds 30%.

St. Louis encephalitis (a flavivirus) forms an enzootic cycle between *Culex* mosquitoes and passerine and columbiforme birds such as sparrows, finches, blue jays, or robins.¹⁴ When natural conditions favor a high level of viral transmission, the virus spills out of the enzootic cycle and humans are infected. Outbreaks and sporadic cases peak in the late summer and early fall. Risk factors for acquisition include open house foundations, open or clogged sewers, inadequate screens, lack of air conditioning and advanced age. Less than 1% of infections are symptomatic. However, about 75% of symptomatic patients develop encephalitis and the remainder develop aseptic meningitis or a febrile illness with headache. The symptomatic case fatality ratio is about 10%.

Several tick-transmitted diseases may be acquired in North Carolina. These include Rocky Mountain spotted fever (RMSF), Lyme disease, tularemia, and ehrlichiosis. Of these, RMSF is the most important because of its prevalence, the difficulty of clinical diagnosis, the potentially fatal outcome, and the unavailability of a sensitive and specific diagnostic test for use during the acute stage of illness. More than 100 cases of RMSF are reported each year from North Carolina. This figure is probably low due to under-ascertainment and under-reporting of cases.

The etiologic agent of RMSF, *Rickettsia rickettsii*, is a small coccobacillus which is an obligate intracellular bacterium. The relationship of *R. rickettsii* and its tick host (various *Dermacentor* species) determines the epidemiology of RMSF. The ticks consume three

blood meals during their lifetimes—just before each molting and as adults before the female lays eggs. Only adult ticks feed on humans; the larvae and nymphs feed on small animals. Thus, infection usually occurs between late spring and summer when adult ticks are feeding.

RMSF is a multisystem disease.^{17,18} Although the disease may be mild in patients who are treated early, most patients suffer moderate to severe illness. The usual incubation period is 4 to 10 days. The onset of disease may be gradual or abrupt. Initial symptoms are nonspecific: fever, malaise, headache that is often severe, and myalgias. Other common symptoms include nausea, vomiting, anorexia, and abdominal pain. Rash, the hallmark of RMSF, characteristically appears between the third and fifth days of illness as a maculopapular eruption that begins on the extremities. As the disease progresses the rash often becomes more defined and petechial, and spreads centripetally to the trunk, with relative sparing of the face. Early definitive diagnosis of RMSF uses fluorescent-antibodies to identify rickettsiae in biopsy samples of the rash. Serological tests do not become reliably positive until 6 to 10 days after the onset of clinical illness. The diagnosis of RMSF must therefore be based on clinical symptoms and signs. Untreated, the mortality of RMSF is 15% to 20%; treatment with doxycycline, tetracycline or chloramphenicol reduces mortality to 3% to 6%.

Caveats in the diagnosis of RMSF include the following:

- 1 The early manifestations of RMSF (fever, headache, myalgias) are non-specific, and RMSF is relatively uncommon compared with viral diseases which are prevalent in the summer.
- 2 The rash, which textbooks say is the hallmark of the disease, may be a late manifestation or absent altogether. It occurs by the third day of illness in only about 50% of cases. In ultimately fatal cases a rash is absent at the time of first presentation to a physician in over 80% of cases.

Therapy must often be started on the basis of nonspecific symptoms, without definitive alternative diagnosis or supportive clinical data.

- 3 Delay in diagnosis of RMSF is not usually the fault of the patient. Patients know they are sick and seek medical care. Delay in diagnosis is a result of the physician failing to consider RMSF. A careful travel and exposure history is essential in evaluating North Carolina patients with a fever.
- 4 Patients are often unaware of tick bites, and exposure to ticks may not be elicited in the history.
- 5 The symptoms of RMSF may suggest gastroenteritis, intraabdominal disease, respiratory tract infection, or central nervous system disease.
- 6 The initial white blood cell count is often normal.
- 7 Most of the laboratory tests that aid diagnosis (low serum sodium, low platelet count, coagulopathy, and low serum albumin) do not occur early in the disease. They are more commonly abnormal in the second week of illness when there is significant mortality.
- 8 Patients often become sicker while being treated with inappropriate therapy. If they have a rash, particularly after taking sulfa drugs, a drug reaction may mistakenly be blamed.

Diseases Transmitted By Inhalation

A number of agents transmitted from animals may produce significant respiratory illness.^{19,20} Disease contracted from aerosols include anthrax, brucellosis, plague, psittacosis, Q fever, and tularemia. Other zoonoses which may involve the lungs include cat scratch disease, dirofilariasis, echinococcosis, ehrlichiosis, leptospirosis, melioidosis, pasteurellosis, Rocky Mountain Spotted Fever, toxocariasis and toxoplasmosis.

Viruses, mycoplasma, *Chlamydia*, and *Legionella* are the most common causes of acute "atypical" pneumonia, but zoonotic pathogens may produce similar symptoms and signs. *Chlamy-*

diapsittaci pneumonia is the most common of these. More than 40 cases were reported to the Centers for Disease Control from North Carolina between 1988 and 1990. In the United States the disease occurs sporadically, most often among persons who work with poultry, especially turkeys. Infections may also be acquired by people who have pet birds, who have contact with birds in pet shops, or who care for birds. Spread to humans occurs by inhalation of *C. psittaci* in dried feces, and by contact with bird feather dust (during plucking or when caged birds flap their wings). Human-to-human transmission may also occur. Common symptoms include a non-productive cough, headache, and flu-like muscle aches, especially of the neck. The pulse may be relatively slow considering the fever. Extrapulmonary symptoms are common and include cardiac, neurologic, hematologic, hepatic and renal abnormalities. Diagnosis is confirmed by serological testing.

Few zoonotic pathogens produce chronic pneumonia, but several fungi may be acquired in North Carolina via inhalation of spore-laden dust. These include *Blastomyces dermatitidis*, *Histoplasma capsulatum*, and *Cryptococcus neoformans*. Migrant farm workers may have *Coccidioides immitis* infection because the disease is endemic in northern Mexico. Pets, especially dogs, may also develop fungal pneumonias following exposure to an environmental source, but aerosol transmission from pet-to-humans does not occur.

Contact

A number of diseases may be acquired through direct contact with infected animals. These include bovine papular stomatitis (cattle), milker's nodule (cattle), orf (sheep), rabies (carnivores, bats), anthrax (cattle or animal products), brucellosis (farm animals), campylobacteriosis (many animals), erysipeloid (fish, shellfish), plague (rodents), Q fever (farm or wild animals, cats), salmonellosis (many animals, especially birds, reptiles), tularemia (rabbits, squirrels), cryptosporidiosis

(pets, farm animals), and giardiasis (pets, wild animals). Several diseases require an animal bite or scratch or contamination of non-intact skin, such as infection with rabies virus, cat scratch agent, *Erysipelothrix rhusiopathiae*, *Vibrio vulnificus*, or *Mycobacterium marinum*.

Occasional cases of tularemia occur in North Carolina. The causative agent is *Francisella tularensis*, a Gram negative bacillus. The incubation period is 3 to 5 days (range 1 to 10 days). Tularemia is characterized by sudden onset, rising and falling fever, chills, joint and muscle pain, headache and vomiting. Multiple clinical forms have been described, determined principally by the agent's route of entry; they are:

- 1 *Ulceroglandular*. The most common form of tularemia, accounting for about 85% of cases in the western hemisphere. A local lesion at the site of entry (an arthropod bite or an injury inflicted by a contaminated sharp instrument) progresses to necrotic ulceration and swelling of the nearby lymph node. The node frequently suppurates, ulcerates and becomes sclerotic.
- 2 *Oculoglandular*. This form develops when infective material comes into contact with the conjunctiva. The primary lesion is an ulcerated papule on the lower eyelid with associated regional adenopathy.
- 3 *Glandular*. Lymphadenopathy without an ulcerative local lesion. The course is similar to ulceroglandular fever.
- 4 *Pulmonary*. Pneumonia following inhalation of infected aerosol while handling dead animals, examining pets ill with respiratory infections, and when isolating the pathogen on agar plates. Secondary tularemic pneumonia arises during septicemia when organisms lodge in pulmonary tissues. Symptoms include cough and high fever, occasional pleurisy and, rarely, dyspnea. The chest radiograph may look worse than the physical examination.
- 5 *Typhoidal*. An uncommon result of ingesting contaminated food (usually rabbit meat) or water. Sym-

toms include fever, prostration, and gastroenteritis. Mucosal ulcers are found in the gastrointestinal tract.

Tularemia is a serious disease. The case fatality rate for untreated patients with pneumonic and typhoidal forms is between 40% and 60%. The diagnosis may be suspected from an appropriate exposure history and the presence an eschar at the site of an arthropod bite. It may be confirmed by serologic testing. Treatment with streptomycin or gentamicin is highly effective in all forms.

Animal Bites

Most animal bites are received from pets, such as dogs and cats. Bites from wild animals are a hazard for veterinarians, hunters, and animal control officers. Although a large number of pathogens may be introduced by the bites of animals other than dogs and cats, a few generalizations may be made.²¹ All felines (including housecats, lions, cougars, panthers, and tigers) may transmit *Pasteurella multocida*, but it may also be transmitted by other animals including pigs, rabbits, rats, opossum and wolves. The agents of rat bite fever, *Streptobacillus moniliformis* and *Spirillum minor*, may be transmitted by several small rodents such as the rat, mouse, and gerbil. About 2% of rodent bites become infected. Bites inflicted in the water or by aquatic animals (alligators, snakes, piranhas) may become infected with *Aeromonas hydrophila* or *Edwardsiella tarda*. Although most cases of tularemia follow the handling of rabbits, infection may be transmitted by the bites of cats, coyotes, pigs and squirrels. Ferrets are an increasing source of bites, especially worrisome since they may carry rabies, as well as transmit influenza, *Campylobacter*, *Salmonella*, *Cryptosporidia*, tuberculosis and *Listeria*.

Patients rarely present with infection within the first eight hours after an animal bite. Two-thirds of patients who have clinical infection present within 8 to 24 hours after injury. All patients with bite wounds should be evaluated

by a physician skilled in dealing with such injuries. Management^{21,22} should include: 1) Evaluation for the presence of life-threatening complications such as pneumothorax, laryngeal or tracheal obstruction, massive blood loss. 2) A diagram or photograph of wounds. 3) Examination by X-ray for suspected fracture, possible foreign body, crush injury). 4) Evaluation of nerve (motor and sensory) and tendon function, range of motion, vascular supply. 5) Evaluation for joint penetration. 6) Obtaining a history of tetanus immunization (follow standard recommendations for administering tetanus toxoid and/or tetanus immune globulin as necessary). 7) Obtaining a history of allergies to antibiotics, analgesics, and topical anesthetics (avoid agents to which the patient is allergic). 8) Obtaining aerobic and anaerobic cultures (if infected, aspiration preferred). 9) Copious irrigation. 10) Cautious debridement; whether to suture wounds remains controversial. Most physicians do suture cosmetically significant wounds and gaping wounds. 11) Administration of antibiotics if indicated. 12) Elevation of injured limbs; immobilization in position of function. 13) Prescription of exercise program if indicated. 14) Carefully documentation of the circumstances of the bite and all therapy. 15) Reporting of incident to health department if required. 16) Rabies prophylaxis if necessary. Local public health authorities should always be consulted regarding the need for rabies prophylaxis. Although no cases of human rabies have been reported recently from North Carolina, rabid animals are detected each year. 17) Arrangement of follow-up.

The use of prophylactic antibiotics is controversial. Large, well-controlled, randomized trials of various treatment strategies are unavailable. Most physicians do not routinely use prophylactic antibiotics for "low" risk wounds, but often do for "high" risk wounds such as full-thickness puncture wounds, hand or lower extremity wounds, wounds requiring surgical debridement, wounds in immunocompromised hosts, and wounds involving joints, tendons, ligaments, or fractures. Therapy of infected wounds should be guided initially by the epidemiology of the bite, principally the biting species, and later by culture results.

Diseases Acquired by Ingestion

Gastroenteritis may be acquired by ingestion of uncooked or undercooked meat (pork, poultry, beef), fish or shellfish; contaminated water; unpasteurized milk; and, for some pathogens direct contact with infected animals.²³ All patients with nausea, vomiting, and diarrhea should be questioned regarding animal (including pet) contact, ingestion of raw or unpasteurized milk, ingestion of possibly contaminated water (for example, during hiking), and ingestion of undercooked or uncooked meat, poultry, fish or shellfish. Knowledge of potential exposures may provide clues as to specific etiologies.

Unpasteurized milk has caused *Salmonella*, *Campylobacter*, *Brucella*, *Listeria*, *Yersinia*, *E. coli*, *Mycobacterium bovis*, *Staphylococcus* and *Streptococcus* infections. Physicians and

other health care workers should advise that drinking raw milk is potentially hazardous.

Eating raw shellfish has been associated with acquisition of many infectious agents, including hepatitis A, Norwalk virus, *Salmonella*, and *Vibrio* species. However, when shellfish are harvested from approved beds and transported appropriately, the risks from ingestion are relatively low.

Contact with domestic and wild animals may lead to gastroenteritis due to *Aeromonas*, *Plesiomonas*, *Salmonella*, *Yersinia* and *Campylobacter* which form part of the gastrointestinal flora of many animals. Proper handwashing and food preparation (cooking and refrigeration) should minimize risks. Some pathogens such as *Giardia*, *Cryptosporidia*, and *Shigella* require only a small inoculum to induce infection and may be acquired directly by fecal-oral contamination. For campers, water contaminated by animal excreta may lead to infections such as leptospirosis, salmonellosis, and giardiasis. Water should always be purified before drinking.

Conclusions

Physicians should be aware of the presenting symptoms, methods of diagnosis, and treatment of zoonotic and environmentally acquired infectious diseases. Such awareness is the first step in proper diagnosis and treatment. Fortunately, most of these diseases can be excluded from consideration by an appropriate medical history. □

References

- Weinberg AN. Ecology and epidemiology of zoonotic pathogens. *Infect Dis Clinics NA* 1991;5:1-6.
- Mandell GL, Douglas RG, Bennett JE. Principles and Practice of Infectious Diseases. Third Edition. New York: Churchill Livingstone, 1990.
- Gorbach SL, Bartlett JG, Blacklow NR. Infectious Disases. Philadelphia: W.B. Saunders Co., 1992.
- Acha PN, Szyfres B. Zoonoses and Communicable Diseases Common to Man and Animals. Second Edition. Scientific Publication No. 503. Washington DC: Pan American Health Organization, 1987.
- Bell JC, Palmer SR, Payne JM. The Zoonoses: Infections Transmitted From Animals To Man. Baltimore: Edward Arnold, 1988.
- Weinberg AN, Weber DJ. Animal associated human infections. *Infectious Disease Clinics of North America* 1991;5:1-181.
- Sanford JP. Humans and animals: increasing contacts, increasing infections. *Hosp Prac* 1990;25:103-20.
- Harris JM. Zoonotic diseases of birds. *Vet Clin NA* 1991;21:1289-98.
- Yu V, Meissner C. Zoonoses. In: Mechanisms of Microbial Diseases. Eds: Schaechter M, Medoff G, Schlessinger D. Baltimore: Williams and Wilkins, 1989, pp. 749-64.
- Elliot DL, Tolle SW, Goldberg L, Miller

- JB. Pet-associated illness. *N Eng J Med* 1985;313:985-95.
- 11 Chretien JH, Garagusi VF. Infections associated with pets. *Am Family Prac* 1990;41:831-45.
 - 12 Chomel BB. Zoonoses of house pets other than dogs, cats and birds. *Pediatr Infect Dis J* 1992;11:479-87.
 - 13 Benenson AS (ed). *Control of Communicable Diseases in Man* (15th Edition). New York: American Public Health Association, 1990.
 - 14 Tsai TF. Arboviral infections in the United States. *Infect Dis Clinics NA* 1991;5:73-102.
 - 15 Hoskins JD. Tick-borne zoonoses: lyme disease, ehrlichiosis and Rocky Mountain spotted fever. *Semin Vet Med Surg* 1991;6:236-43.
 - 16 Telford SR, Pollack RJ, Spielman A. Emerging vector-borne infections. *Infect Dis Clin NA* 1991;5:7-17.
 - 17 Weber DJ, Walker DH. Rocky Mountain spotted fever. *Infect Dis Clinics NA* 1991;5:19-35.
 - 18 Kirk JL, Fine DP, Sexton DJ, Muchmore HG. Rocky Mountain spotted fever: a clinical review based on 48 confirmed cases, 1943-1986. *Medicine* 1990;69:35-45.
 - 19 Weinberg AN. Respiratory infections transmitted from animals. *Infect Dis Clin NA* 1991;5:649-61.
 - 20 Winer-Muram HT, Rubin SA. Pet-associated lung diseases. *J Thorac Imaging* 1991;6:14-30.
 - 21 Goldstein EJC. Bite wounds and infection. *Clin Infect Dis* 1992;14:633-40.
 - 22 Weber DJ, Hansen AR. Infections resulting from animal bites. *Infect Dis Clin NA* 1991 5:663-80.
 - 23 Fang G, Araujo V, Guerrant RL. Enteric infections associated with exposure to animals or animal products. *Infect Dis Clin NA* 1991;5:681-701.

AFFORDABLE
MEDICAL OFFICE MANAGEMENT SYSTEMS
MEDI SOFT & PROSPECTUS MEDICAL
OFFICE SYSTEMS

Electronic & Paper Claims System
Single & Multi-User
LAN Networks - Novell LanTastic®
Insurance Billing System
In Office Staff Training & Support
Medical Office Records System
Multiple Reports Available
Customization Available

FOR MORE INFORMATION PLEASE CALL:

PROSPECTUS COMPUTER SYSTEMS
 847 WEST LAKE DRIVE
 MT. AIRY, N.C. 27030
 (919) 789-8490



SPECIALIZE IN AIR FORCE MEDICINE.

Become the dedicated physician you want to be while serving your country in today's Air Force. Discover the tremendous benefits of Air Force medicine. Talk to an Air Force medical program manager about the quality lifestyle, quality benefits and 30 days of vacation with pay per year that are part of a medical career with the Air Force. Find out how to qualify. Call

USAF Health Professions
Toll Free
1-800-423-USAF



Environmental Conditions in Rural North Carolina

Trenton G. Davis, Dr.P.H.

Data from the 1980 census indicated that water and wastewater disposal conditions in North Carolina were among the worst in the country.¹ The state's rural regions and poor counties were in far more serious condition than the rest of the South. Those areas with the worst water and wastewater problems generally faced declining economic conditions, educational problems, and increasing poverty as well.

Lack of safe water supplies and proper wastewater disposal facilities are only two of several rural environmental health concerns that I will address in this paper. I will also review efforts to minimize risks from exposure to pesticides and other contaminants in drinking water, the evidence that children living in rural areas are at greater risk of lead poisoning than their urban counterparts, and the equitable distribution of hazardous waste disposal sites.

Wastewater Disposal and Plumbing

Public health officials recognize that the public's health depends on proper disposal of sewage and other wastewater from homes. Among the many diseases transmittable by human wastes

are typhoid fever, hepatitis, and cholera - diseases we normally associate with third world living conditions. These diseases may be transmitted to food by arthropods such as house flies or by sewage contamination of individual water supplies especially if improper wastewater disposal methods are used.

In 1980, 4.5% of North Carolina's year-round housing units lacked septic tanks or connection to public sewers; most were located in rural areas.¹ By 1990, the percentage of homes lacking septic tank systems or connection to public sewers had dropped to 1.8% (Table 1). The number of homes without adequate sanitary facilities fell by half from 99,409 in 1980 to 49,528 in 1990. Regrettably, the percentage of homes without suitable facilities remains high in many predominately rural counties. Over 8% of homes in Gates, Tyrrell, and Warren Counties use means other than septic tanks or public sewers for wastewater disposal (Table 1). Those other means of sewage disposal include the use of pit privies or "outhouses," the discharge of wastewater onto the surface of the ground, or piping untreated sewage directly into streams or other bodies of water. A pit privy can be constructed and operated in a sanitary manner, although many are unsanitary and constitute a hazard to human health and the environment. All other means of wastewater disposal are illegal in this state.

The installation of septic tank systems is governed by state rules and requires approval by local environmen-

tal health specialists certified by the Division of Environmental Health in the NC Department of Environment, Health, and Natural Resources (NCDEHNR). In 1980, 48.7% of North Carolina households used septic tank systems and the percentage has changed little since. Because there are more homes now than in 1980, the number of septic tanks in use has increased dramatically; 40,000 new septic tank permits are issued each year.² In rural counties as many as 93% of households use such systems (Table 2).

Properly maintained septic tanks provide safe wastewater treatment and disposal. However, these systems don't operate properly for an indefinite time without maintenance. This fact and the high concentration of septic tank systems in some areas increase the potential for contamination of ground and surface water. The World Health Assembly announced in 1977 that by the year 2000 all people of the world should have access to housing (including complete plumbing) that would permit them to lead socially and economically productive lives.³ North Carolina still has a lot of work to do, although we are making progress.

Drinking Water

Individuals residing in rural areas are likely to obtain their drinking water from private sources, especially wells. About 58% of North Carolina residents rely on ground water sources (45% use

From the Department of Environmental Health, East Carolina University, Greenville, NC 27858

Table 1. North Carolina counties with highest percentage of housing lacking septic tanks or public sewer

County	Total Houses	Alternative Disposal Methods	Percent Alternative Methods
Bertie	8,331	504	6.0
Bladen	12,685	551	4.3
Camden	2,466	144	5.8
Caswell	8,254	572	6.9
Clay	4,158	174	4.2
Columbus	20,513	898	4.4
Duplin	16,395	733	4.5
Franklin	14,957	761	5.1
Gates	3,696	348	9.4
Granville	14,164	794	5.6
Greene	5,944	299	5.0
Halifax	22,480	1,366	6.1
Hertford	8,870	432	4.9
Hyde	2,905	189	6.5
Madison	7,667	561	7.3
Martin	10,104	425	4.2
Mitchell	6,983	358	5.1
Nash	31,024	1,513	4.9
Northampton	8,974	497	5.5
Person	12,548	642	5.1
Tyrrell	1,907	173	9.1
Warren	8,714	717	8.2
Yancey	7,994	586	7.3
TOTAL NC	2,818,193	49,528	1.8

SOURCE: On-Site Wastewater Section, Division of Environmental Health, NCDEHNR

Table 2. North Carolina Counties with highest percentage of housing using septic tanks

County	Total Houses	Septic Tanks	% Septic Tank
Alexander	11,197	9,915	89
Ashe	11,119	9,354	84
Brunswick	37,114	30,434	82
Camden	2,466	2,296	93
Caswell	8,254	6,873	83
Currituck	7,367	6,196	84
Dare	21,567	17,505	81
Gates	3,696	3,266	88
Graham	4,132	3,433	83
Hyde	2,905	2,624	90
Lincoln	20,189	16,273	81
Macon	17,174	14,125	82
Pamlico	6,050	5,200	86
Stokes	15,160	12,285	81
Wilkes	24,960	20,467	82
TOTAL NC	2,818,193	1,365,632	49

SOURCE: On-Site Wastewater Section, Division of Environmental Health, NCDEHNR

North Carolina's nearly 800,000 private wells).⁴ Domestic wells are susceptible to both chemical and microbial contamination. The United States Environmental Protection Agency (USEPA) estimates that 250,000 of the 10.5 million domestic wells in the US have nitrate levels above the maximum permissible 10 parts per million. The USEPA also estimates that over 60,000 wells in the US have pesticide contamination above maximum allowable levels.⁵ In the State of Washington, researchers found wells contaminated with fumigants no longer used in the US (pentachlorophenol, ethylene dibromide, and dichloropropenes) that had leached into the groundwater and remained there for several years.⁶

sampled 34 Hertford County drinking water wells in July/August and in October and tested for alachlor, metolachlor, and trifluralin. Alachlor was found in samples from two wells obtained in July/August but not in October.⁷ The NCDEHNR investigated nine episodes of suspected pesticide contamination of groundwater between 1985 and 1987;⁷ in five cases there were measurable amounts of pesticide contaminants. In three instances there were detectable levels of pesticides (chlordane, heptachlor, or dieldrin) used in the past for agricultural and structural insect control. In another, lindane from an abandoned dump site was found in four wells. In the last, detectable levels of alachlor were found in one

drinking water well and two monitoring wells.

The NCDA and the NCDEHNR are conducting an extensive study to determine the impact of pesticide use on groundwater in North Carolina.⁷ The results will provide the North Carolina Pesticide Board and public health officials with a scientific basis for determining whether pesticide-specific management plans, or additional use restrictions, are needed to protect the health, safety and environment of the people of the state. In Phase I of the study, 56 wells, representing the state's major drinking water aquifers, are being sampled and analyzed for pesticides. In Phase II, 100 new shallow monitoring wells will be installed in at least 39 counties across the state, near sites of pesticide use. These wells will be located on cooperating landowners' property where shallow water is susceptible to contamination. There will be three sites adjacent to each of 25 target crops and 25 sites in forest plantations, mosquito abatement areas, golf courses, highway right-of-ways, and

nursery, industrial, ornamental, turf, and structural sites. Thirty-one widely used pesticides are the primary targets in the study (Table 3), but the analytical methods are capable of detecting 152 pesticides and other analytes in groundwater samples. Through March, 1993, 69 wells had been sampled and analyzed at least once. The cooperating laboratories detected and confirmed the presence of one analyte in two wells, and the same analyte on follow-up. There has been inconsistent detection of low levels of 2,4,5-T, DDT, merphos, malathion, metribuzin, pentachlorophenol, hexazinone, and DDD from 11 wells.⁷ However, it is too early to make conclusions about the implications of the results and their potential impact on human health and environment.

Chemical and biological contamination of private drinking water supplies is especially likely because private supplies are not routinely monitored for contaminants. Municipal and community water systems are monitored for contamination under the Federal Safe Drinking Water Act. Several North Carolina county governments have adopted local ordinances requiring that well drillers install wells so that groundwater is protected and that wells be located at safe distances from sources of contamination such as subsurface wastewater disposal systems. Other county governments should adopt similar ordinances designed to provide rural citizens with safe drinking water supplies.

Drilled wells are not the only non-public sources of drinking water. Many rural residents use hand-dug wells, springs, or cisterns. Springs and cisterns may be properly protected and disinfected, but hand-dug wells are invariably contaminated and generally unsafe for drinking.

Each citizen of North Carolina should have access to safe potable water. Citizens who have questions about the safety of private water supplies or who wish to have water analyzed for biological or chemical contaminants should contact their local health department. In most cases, an environmental specialist will determine

Table 3. 31 pesticides monitored by the NCDA and the NCDEHNR in groundwater contamination study

1. acifluorfen	17. dicamba
2. alachlor	18. diphenamid
3. aldicarb	19. disulfoton
4. ametryn	20. diuron
5. atrazine	21. fluometuron
6. butylate	22. heptachlor
7. carbaryl	23. hexazinone
8. carbofuran	24. methomyl
9. carboxin	25. metolachlor
10. chlordane	26. metribuzin
11. chloramben	27. oxamyl
12. chlorothalonil	28. propchlor
13. cyanazine	29. simazine
14. 2,4-D	30. terbacil
15. DCPA	31. trifluralin
16. diazinon	

Source: Draft Interim Report, The Interagency Study of the Impact of Pesticide use on Groundwater in North Carolina, The Interagency Pesticide Ground Water Study Work Group, Raleigh, May 6, 1993.

whether the water supply is properly protected from surface contamination before collecting a sample for laboratory analysis. A fee is usually charged unless a physician requests that the water be tested or the local health department is conducting an investigation of a private water supply suspected of being involved in a disease outbreak.

Childhood Lead Poisoning

The hazards of lead ingestion are well known. Even small amounts of lead paint flakes or leaded dust can be harmful to children. Because of concern about lead poisoning, North Carolina has mandated that all children seen at local health departments or by private providers for Medicaid visits have a screening blood lead measurement before age six.

Childhood lead screening and follow-up protocols in North Carolina underwent substantial changes during

1992 after new guidelines were published by the Centers for Disease Control and Prevention (CDC).⁸ Since October 1, 1992, screening tests have used direct blood lead measurement and, as a result, the number of children with identified elevation of blood lead levels increased dramatically during the last three months of 1992 (Table 4). The action level for individual case identification and follow-up also was lowered in accordance with CDC recommendations. A blood lead level of 15 µg/dL or above is now considered abnormal rather than the previous level of 25. This new action level, combined with the use of a more sensitive screening test and an increase in the number of children screened in 1992, has resulted in a more than ten-fold rise in the number of individuals needing follow-up (Table 4).

The blood lead level triggering environmental intervention (home investigation and lead hazard abatement) has not changed in North Carolina although the CDC has recommended lowering the level from 25 to 20 µg/dL. We can anticipate this seemingly small change in the near future, and it will increase three-fold the caseload of an already overworked local environmental health staff.⁸

During 1992, the Environmental Health Division of the NCDEHNR investigated reports of lead hazards in homes located in 33 counties. Most were in rural areas. A majority were older houses painted with lead-based paint, poorly maintained, and often without adequate sewage disposal. In some cases, occupants burned painted boards as fuel in wood stoves. Children living in such homes in rural areas may be at higher risk for lead poisoning than children living in urban areas, especially since there are many older houses in rural areas. Public health officials are concerned that rural counties may lack the economic resources necessary to address the childhood lead poisoning problem. We must find a way to fund this essential environmental intervention and abatement; otherwise, children will continue to live in poisonous environments.

Table 4 Blood lead levels in North Carolina children less than six years old

Time Period	Children Screened	Number with Blood Lead Levels			
		10-14 µg/dL	15-19 µg/dL	20-24 µg/dL	25-100 µg/dL
1/1/91-9/30/92	45,568 (2170/month)	328	148	57	77
10/1/92-1/31/93	12,351,771 (3088/month)	243	83	65	
		Percentage with Blood Lead Levels			
		> 10 µg/dL	> 15 µg/dL	> 20 µg/dL	> 25 µg/dL
1/1/91-9/30/92		1.4%	0.6%	0.3%	0.2%
10/1/92-1/31/93		17.5%	3.2%	1.2%	0.5%

SOURCE: Childhood Lead Poisoning Prevention Program, Preventive Services Branch, Health Services, NCDEHNR

Environmental Equity

In 1982, a demonstration against siting a polychlorinated biphenyl (PCB) landfill in predominately black and rural Warren County made North Carolina "a watershed in the movement to link environmental issues with social justice."⁹ The protests eventually lead the USEPA and other groups to investigate the placement of hazardous waste facilities in rural and minority communities. The Government Accounting Office reported in 1983 that three of the four major hazardous waste landfills in the South were located in predominately black rural communities. In 1988, another study found that communities having a commercial hazardous waste facility had twice the proportion of minorities as communities without such facilities.

It is not so clear that waste facilities are disproportionately sited in rural areas. Clean Sites, Inc., a private non-

profit group, identified 470 rural poor counties in the United States. Although 15% of all counties in the U.S. are rural and poor, these counties contain only 4% of the sites contaminated by hazardous wastes, 2% of the active hazardous waste storage and treatment facilities, and 2% of the nation's Superfund sites. The study concluded that when Superfund sites are identified in rural poor counties, they receive about the same level of federal attention as Superfund sites nationally.¹⁰

A large percentage of the 824 North Carolina sites listed on the USEPA's Corrective Action list are located in rural areas.¹¹ These sites include minor spills or contamination as well as highly contaminated industrial areas located far from residential areas and water sources. Nevertheless, all sites need to be cleaned up or remediated because of their potential future impact on human health or the environment.

In 1989, the legislature banned the disposal of whole tires in landfills. An unanticipated outcome has been an increase in illegal dumping of tires in rural areas. According to the NCDEHNR, there are over 140 illegal tire dumps in the State, some containing more than 100,000 tires.¹² These sites are more than "eyesores." They are fire hazards, habitats for rodents, and breeding grounds for mosquitos capable of transmitting diseases to humans.

The USEPA convened a workgroup to assess whether racial minority and low-income neighborhoods bear a higher environmental risk burden than the general population. Their report on how to deal with environmental equity issues pointed out the great opportunities for the USEPA and other government agencies to improve communications about environmental problems with members of low-income and racial minority groups.⁹ In North Carolina, the major responsibility for improving communications with low-income and racial minority groups living in rural areas are likely to fall to the professionals working in local health departments.

Provision of suitable housing with complete plumbing and proper wastewater disposal and access to safe drinking water are critical to improving or protecting the health of rural North Carolinians. When rural counties lack the resources and personnel to address adequately the environmental issues affecting human health, it is imperative that State government and private groups collaborate in creative ways. We must make sure that no citizens of North Carolina live in "Third World" conditions. □

References

- 1 The North Carolina Rural Communities Assistance Project and the North Carolina Rural Economic Development Center. *Living Without the Basics: The Hidden Water and Wastewater Crises in Rural North Carolina*. Pittsboro, NC, 1990.
- 2 Data from the On-Site Wastewater Section, Division of Environmental Health, NC Department of Environment, Health and Natural Resources, Raleigh, 1992.
- 3 American Public Health Association. *Housing and Health*. Washington, DC, 1986.
- 4 Moureau DH. What is the quality of water in North Carolina? *NCMJ* 1992; 53:368-370.
- 5 United States Environmental Protection Agency. *National Survey of Pesticides in Drinking Water*. Washington, DC, 1990.
- 6 Cooper CG, MacConwall C. *Clean Water for Washington*. EB 1632. Washington State University, Pullman, WA.
- 7 The Interagency Pesticide Groundwater Study Work Group. *The Interagency Study of the Impact of Pesticide Use on Ground Water in North Carolina (Draft Interim Report)*. Raleigh, May, 1993.
- 8 Norman E. *North Carolina Childhood Lead Poisoning Prevention Program Narrative*. Childhood Lead Poisoning Prevention Program, Division of Health Services, NC Department of Environment, Health and Natural Resources, Raleigh, 1992.
- 9 Mohai P, Bryant B. Race, poverty, and the environment. *EPA Journal* 1992; 18:6-8.
- 10 Reilly WK. Environmental equity: EPA's position. *EPA Journal* 1992; 18:18-22.
- 11 Davis, TG. Hazardous waste: A North Carolina dilemma. *NCMJ* 1992; 53:338-43.
- 12 Data from the Solid Waste Section, Division of Solid Waste Management, NC Department of Environment, Health, and Natural Resources, Raleigh, NC, 1992.

Confronting Psychiatric Problems and Issues in Rural Areas

With Help From Primary Care Physicians

J. Frank James, M.D.

Was rural living ever as idyllic and stress-free a tradition as it seemed? It is difficult to believe that "a discouraging word" is seldom heard today when farm survival is difficult, small-town businesses are pressured by accessible malls, family restaurants have been displaced by fast food chains, consolidated schools have reduced home-town identities, and television crime is present in every home. In fact, the prevalence of mental disorders in rural areas is about the same as in cities, even in North Carolina.¹ The only difference found in a survey of five piedmont counties was a higher prevalence of severe depression and drug abuse in cities and a higher prevalence of alcoholism in rural areas; the prevalence of dysthymia (less severe, but persistent depression), schizophrenia, obsessive-compulsive disorder, antisocial personality, agoraphobia, and cognitive dysfunction (mostly dementias) was about the same in both areas. Nor have the proportional hospitalization rates changed over time. Kiesler found that the percentages of general hospital admissions for psychiatric disorders had not varied significantly between 1975 and 1985.²

The question is whether people in rural areas are blocked from receiving the help they need because of innate

barriers to mental health treatment in rural areas: more stigma associated with mental illness, less insurance coverage, more negative attitudes toward psychiatrists, and less anonymity when seeking help.³ In any case, the first professional line of defense against mental illness is the family physician and, having first hand contact with many rural physicians, I have been impressed with how receptive most are, how sensitive they are to emotional problems, and how knowledgeable many are regarding psychoactive medications.

Family physicians are as good as psychiatrists at identifying the 20% of primary care office patients who are depressed (psychiatrists are able to recognize another 10% of patients with other psychopathology).⁴ This finding has been replicated although some of the treatments proposed by family physicians were questioned.⁵ In another study (which found a 30% prevalence of anxiety and depression in general practice) general practitioners accurately diagnosed 72% of mental disorders.⁶ Primary care physicians provide almost 50% of mental illness treatment and 85% of all psychoactive medication prescriptions. In fact, about 30% of all patient visits to primary care physician offices are for psychological reasons.⁷ Nevertheless, there is still a great need. A national study showed that only 16% to 20% individuals with recent mental illness had received any help.⁸

Intervention and the Elderly

Barriers to obtaining help for mental illness are considerably amplified in the elderly, in part because older persons resist mental health professionals. Taube et al⁸ found that only 1% of the mentally ill aged over 65 had seen a mental health specialist and only 10% had discussed their emotional problems with their family doctor. As many as 40% of the elderly seen in a primary care setting have mental disorders, but only a third of them receive any treatment.

Primary care physicians are less likely to recognize and treat mental illness in the elderly than in younger adults, possibly because of difficulty in differentiating the normal changes of aging from treatable mental illness.⁹ This is a serious and immediate problem. A survey of nursing home patients showed that 17% demonstrated uncooperative behavior and that a psychiatric diagnosis (most commonly dementia complicated by depression, delusions, or delirium) could be made in 87% of cases.¹⁰ A general practitioner, who otherwise provides excellent medical care, recently told me that he routinely prescribes Valium and Prozac for all of his nursing home patients. He also wanted me to see several who were not doing well. I do not recommend his approach.

Professor and Chair, Department of Psychiatry, East Carolina University School of Medicine, Greenville 27858.

Intervention and Children

Since adolescence is a time of turmoil, it is not surprising that 22% of adolescents have problems that meet diagnostic criteria for a mental disorder. The most prevalent diagnoses are oppositional disorder, conduct disorder, over-anxious disorder and simple phobia.¹¹ Conduct disorder is three times more common in boys, while over-anxious disorder is five times more common in girls.¹²

About 16% of pre-adolescents have a mental disorder (anxiety disorder in 8%, attention deficit disorder in 41%, conduct disorder in 41%, and depressive disorder in 10%).¹³ Only one child in eight gets help. During a one year period, eastern North Carolina pediatricians identified 1,261 cases of attention deficit disorder, 160 cases of bipolar disorder and 519 cases of substance abuse; general practitioners identified 308 cases of attention deficit disorder, 25 cases of bipolar disorder and 78 cases of substance abuse.¹⁴

Clearly, primary care physicians have an important role in recognizing and treating this group, but progress is slow. From 1975 to 1986 there has been a 60% increase in the number of services to adolescents nationwide, but still only about 2% of those who need help get it.¹⁵ In addition to diagnosable mental disorders, young people face many problems that would be helped by counseling, including substance abuse, AIDS, physical or emotional abuse, and neglect.

Mental Health Centers

North Carolina has done well to develop a network of multi-service Area Programs for persons with mental illness, substance abuse and mental retardation. In most states, these different services are separated, creating duplicated administrative overhead and competition for resources. The community mental health concept has been particularly helpful in rural areas where allotted funds have been used to successfully attract mental health professionals. This concept differs from the

health care system which allots dollars to physicians according to where they want to practice, not necessarily where the needs are greatest.

By state statute, services in the Area Programs are available irrespective of ability to pay, creating a true safety net for the uninsured and underinsured. North Carolina Area Programs account for 87% of all outpatient mental illness treatment encounters in the state, ranking it near the top of states in reaching people with public programs.¹⁶ Seventy-eight percent of services are provided to adults and 22% to children; figures for the elderly are not available, but at one representative center only 5% of patients were over 65 years of age.¹⁷ Priority for service in Area Programs is given to persons with severe and persistent mental illness, and this may sometimes deflect those with less severe illness. Primary care physicians continue to serve as the front line for many patients with less severe illness, especially the elderly.

Directions of the System

A number of issues impact on services in rural areas:

1. *For children.* There is a powerful national movement to decrease hospitalization of children. This movement, led by third party payers and child mental health professionals, is partly a reaction to the excessive private psychiatric hospitalization of children that occurred during the 1980s. It also represents a strong clinical bias toward keeping children in their family and treating the whole family.

2. *For the elderly.* Organized mental health programs have few major initiatives to reach the aged, there are no law suits pending in their behalf, and there is minimal emphasis in medical education on understanding the mentally ill elderly. This deficit will eventually have to be addressed. Meanwhile, the rural primary physician must be prepared to care for the elderly.

3. *For the mentally retarded.* North Carolina is required under the recent "Thomas S" law suit to provide main-

line services in the community for mentally retarded adults who are also mentally ill. Previously many of these patients have been institutionalized lifelong. Now they will be mainstreamed in the community. Rural primary care physicians may have experience with developmentally disabled patients kept at home, but clients who are mentally ill and also have behavior problems present a new challenge. For example, over 300 individuals have already been identified in eastern North Carolina; I have examined 38 of them and 50% had significant medical problems. We have established a "Thomas S" clinical team in the Department of Psychiatry at East Carolina University, and our consultation service is available to primary care physicians.

4. *The adult effects of childhood abuse.* A major clinical development of recent years is the realization of the profound effects of early childhood abuse, especially on women, and the persistence of those effects into adulthood. The rural primary care physician may be the only person who has earned sufficient trust that the patient will confide such a history. Victims often have such unstable moods, unstable work and social histories, and unstable relationships that they are diagnosed as psychotic or as having severe character disorders. They may actually suffer from a form of post-traumatic stress disorder and frequently respond well to treatment. Borderline or Multiple Personality Disorders may be sequelae of such childhood trauma—then expert psychiatric help is definitely indicated.

5. *Small psychiatric units.* A number of small general hospitals across the state are converting medical beds into psychiatric units. In 1950, there were only 73 such units in the country. Now there are thousands which provide an excellent community response to needs. In 1959, the Joint Congressional Commission Report on Mental Illness and Health said: "No community general hospital should be regarded as rendering a complete service unless it accepts mental patients for short term hospitalization and provides a special unit for them."¹⁸ These units are helpful in preventing the stigma of mental hos-

pitalization, keeping the person part of their family, and stimulating community support. Because of the shortage of psychiatrists in rural areas, primary care physicians may need to help the psychiatrist cover these local inpatient units and certainly need to provide medical care there.

6. *Outpatient care.* The success of area programs in using alternative services in lieu of state hospitalization (especially when local hospital units are available) means that primary care physicians need to provide outpatient care. A survey of family physicians in Great Britain found that 90% were willing to take care of long-term psychiatric patients, but wanted psychiatric back-up for the mental disorder treatment. A surprising 40% were willing to take care of both physical and psychiatric needs, but still wanted psychiatric consultation available.¹⁹ Similar attitudes would most likely prevail in our rural area physicians.

7. *Alcohol and drug abuse.* Alcohol is the most prevalent substance of abuse, but as illicit drug availability reaches further out into rural areas, primary care physicians will have to deal with the clinical problems of overdose, toxicity, adverse reactions, psychological sequelae, and scarcity of treatment resources. Only 10 counties in North Carolina had less than 40 persons per 100,000 population admit-

ted each year to the three alcohol-drug treatment centers.²⁰ The rural primary care physician may have to provide leadership, as has already occurred in many towns, in organizing the community to resist this dreadful incursion and to rally young people to abstain from substance abuse.

8. *Treating mental illness.* The armamentarium of psychotropic medications is changing and progressing rapidly. Some new medications are truly miraculous, to the point that few cases of depression remain untreatable. Still, the side effects of medication, though subtle, may be troublesome. For example, almost all antidepressants are associated with a high incidence of sexual dysfunction, although the patient may have difficulty reporting it. Of course, some episodes of anxiety or depression or even near psychotic states need more than medication. Working through a grief reaction with a professional is better insurance against recurrence of grief for exacerbation of depression than medication-induced symptom relief. A patient who is willing to talk should have the opportunity to do so.

9. *The obligation of medical schools.* Medical schools must help rural primary care physicians in many ways. University education should not stop at graduation; schools need to provide the primary care physician with

access to rapidly evolving new developments in medicine including enhanced psychiatric information. The American Psychiatric Association has encouraged psychiatric residency programs to include exposure to homeless, and severe and persistent mentally ill populations. Medical schools need to prepare family physicians to take care of mental illness in the community and to help rural communities recruit psychiatrists. Primary care physicians working with their local general hospital or mental health center to recruit psychiatrists should be able to turn to their university medical school for help.

10. *The provision of psychiatric care in the future.* As managed care organizations expand, even to rural populations, we must make sure that they provide treatment of mental illnesses. The mental health centers offer a safety net for severe and persistent mental illness and for those unable to pay, so mental illness coverage can be a bargain for third party payers. Since reduction of psychological stress can alleviate the prevalence and complications of physical illness, rural primary care physicians will serve themselves well if they support adequate reimbursement for their psychiatric colleagues. This may be the only way that psychiatrists will be able to afford to practice in rural areas. □

References

- Blazer D, George LK, Landerman R, et al. Psychiatric disorders. Arch Gen Psychiatry 1985;42:651-6.
- Kiesler CA, Simpkins C. Changes in diagnostic case mix in psychiatric care in general hospitals. Gen Hosp Psychiatry 1992;14:156-61.
- Reed DA. Adaptation: the key to community psychiatric practice in the rural setting. Community MHJ 1992;28:141-50.
- Armstrong D, Bird J, Fry J, et al. Perceptions of psychological problems in general practice. Fam Practice 1992;9:173-6.
- Goldberg DP, Huxley PJ. Common Mental Disorders: A Bio-Social Model. New York: Tavistock/Routledge, 1991.
- Vonkorff M, Shapiro S, Burke JD, et al. Anxiety and depression in a primary care clinic. Arch Gen Psychiatry 1987;44:152-6.
- Zimmerman MA, Wienckowski LA. Revisiting health and mental health linkages: a policy whose time has come - again. J Pub Health Policy 1991;12:510-23.
- Taube CA, Regier DA, Burke JD, et al. Report of the Epidemiologic Catchment Area Study of Mental Disorders. Division of Biometry and Epidemiology of the National Institute of Mental Health, 1985.
- German PS, Shapiro S, Skinner EA, et al. Detection and management of mental health problems of older patients by primary care providers. JAMA 1987;257:489-93.
- Rovner BW, Steele CD, German P, et al. Psychiatric diagnosis and uncooperative behavior in nursing homes. J Geriatric Psychiatry and Neurology 1992;5:102-5.
- McGee R, Feehan M, Williams S, et al. DSM-III disorders in a large sample of adolescents. J Am Acad Child Adolesc Psychiatry 1990;29:611-9.
- Cohen P, Velez N, Kohn M, et al. Child psychiatric diagnosis by computer algorithm: theoretical issues and empirical tests. J Am Acad Child Adolesc Psychiatry 1987;26:631-8.
- Lahey BB, Loeber R, Stouthamer-Loeber M, et al. Comparison of DSM-III-R diagnoses for prepubertal children: changes in prevalence and validity. J Am Acad Child Adolesc Psychiatry 1990;29:620-6.
- Bloch R, Diamond J. A survey of eastern N.C. care providers for prevalence of child mental disorders. Unpublished data, 1991.
- Burns B. Mental health service use by adolescents in the 1970s and 1980s. J Am Acad Child Adolesc Psychiatry 1991;30:144-50.
- Redick RW, Witkin MJ, Atay JE, et al. Outpatient care programs of mental health organizations, U.S., 1988. Statistical Note, Sept. 1991:200.
- Creech SK. Pitt County Mental Health, Development Disabilities and Substance Abuse Center Annual Report. 1991-1992.
- Glasscote RM, Gudeman JE, Beigel A. The uses of psychiatry in smaller general hospitals. The Joint Info. Service of the American Psychiatr. Assoc. and the National Mental Health Assoc. 1983.
- Poynton A, Higgins P. Role of general practitioners in care of long-term mentally ill patients. Br J Psychiatry 1991;159:703-6.
- Fay K. Ann Statist Report: N.C. Alcohol and Drug Abuse Treatment Centers. NC Div of Mental Health, Developmental, Disabilities and Substance Abuse Services, 1990.

The Reinvention of Traditional Medicine in Western North Carolina

Heidi Kelley, Ph.D., Catherine O'Sullivan, Joan M. Reed, B.A., and Jean Sexton

For a long time the American medical establishment and unconventional medical practitioners have struggled over the efficacy and safety of non-orthodox healing therapies. Whether or not we agree with the medical validity of any or all unconventional therapies, the reality is that Americans turn frequently to unconventional forms of medicine to treat what ails them. In 1990 alone, Americans made 425 million visits and paid \$13,700,000,000 to providers of unconventional medical therapies.¹ So popular are some alternative therapies, that the Federal Government recently established an Office of Alternative Medicine to study such treatments.

Consistent with trends in the rest of the country, a virtual cornucopia of unconventional medical therapies can be found in western North Carolina. There is a wide variety of alternative medical therapies available, from the ubiquitous (osteopathy and chiropractic), to those that are marginally accepted (acupuncture, homeopathy, herbalism, rolfing, shiatsu massage, naturopathy, and biofeedback), to the obscure (aromatherapy, reflexology, color healing, spiritual healing, ayurveda, guided imagery, macrobiotics, colonics, and the use of crystals). In addition there are the various forms of healing popularly categorized as "folk medicine." While many of the above-

mentioned therapies are associated with urban populations, folk medicine tends to be linked with rural populations.

Folk medicine is often viewed as stagnant, homogeneous and timeless. "Mountain folk" themselves tend to be stereotyped as marginal, moribund, and resistant to change. This is not an accurate portrayal either of mountain folk or their healing traditions. All healing practices represent an ongoing negotiation between various cultures within the context of the larger society. What is most interesting about unconventional medicine in western North Carolina today is the way in which "folk" medical traditions are being reinterpreted and incorporated into new systems of healing.

Native American Healing

Of particular note is the influence of Cherokee healing traditions on alternative medical therapies. For more than four thousand years, the Appalachian region has been home to the Cherokee people. Over the years, the Eastern Cherokee (who live today in the mountain counties of Western North Carolina) have blended their traditions with those of European settlers, blurring many distinctions between the cultures. When European settlers first moved into this area, they were strongly influenced by Cherokee healing practices and learned a great deal from the native population about the medicinal uses of

indigenous plants. Neither of these folk traditions has remained stagnant or homogeneous.

Today there is a strong movement to combine traditional Cherokee healing with scientific medicine. At the Cherokee Indian Hospital, for example, a patient may request the services of a tribal healer in conjunction with conventional medicine. While there are no healers on staff, the hospital provides space and access for healers in compliance with a patient's wishes. On a similar note, a new program to prevent drug and alcohol abuse and suicide among teens has been implemented at the high school in Cherokee. Using elements of Cherokee culture, the program seeks to mitigate the pressures surrounding students while reaffirming their cultural and social identity as Native Americans.

According to Cherokee legend, sickness and disease were introduced by animals who became angry at the overcrowding and destruction of the environment by humans. The plants felt sorry for humans, however, and each plant offered to become a remedy for a specific illness.² It was the responsibility of the people to discover each plant's potential, both by experimentation and by listening to "the spirit of the plant [as it suggested] the proper remedy."³ These beliefs gave rise to different specializations of Cherokee healers. A conjurer knows which plants will effectively prevent or cure an illness and uses each as part of a specific healing ceremony; an herbalist simply

From the Department of Sociology, University of North Carolina at Asheville, One University Heights, Asheville 28804-3299.

prepares and administers remedies without benefit or knowledge of an accompanying ritual.

The nature of Cherokee medicine is preventative and holistic rather than curative and symptom-focused. Healing plants are cultivated or selected, harvested, and prepared in specific ways believed to enhance their natural powers. Common Appalachian plants such as *life everlasting* (rabbit tobacco) and *ginseng* figure prominently in Cherokee medicine, both for their medicinal and spiritual properties.⁴ Crystals and other minerals play an important part as well; they serve to bring the body and spirit into harmony which is perceived as necessary for well-being.⁵ Today, many of these Native American practices have been extrapolated to meet the needs of other Americans, often with little regard for the cultural context and symbolic content. As a result, some Cherokee healers guard their customs and resist attempts to publicize and generalize medical information, particularly that pertaining to ceremonial behavior and expectations.

The Reinvention of Native American Ritual

The reluctance of some other Native Americans to share their sacred healing practices is not universal. Some Native American practitioners, encouraged by

their non-Native American counterparts, hold workshops to teach those interested in traditional Native American healing practices. What results is a reinvention of traditional healing practices, interpreted to meet the needs of other peoples and adapted to mainstream Western culture. One example of this process is found in Asheville, North Carolina, in a store called "A Healing Path" that labels itself a "recovery store." It is replete with books, films, herbal remedies and crystals to be applied to every imaginable physical or emotional ailment. The store was opened to meet the needs of recovering individuals, both in and out of 12-step programs, but the store's underlying philosophy and approach to health, like that of the Cherokee, is preventative and holistic rather than curative and symptomatic. Many of the remedies and books available in the store—even its name—suggest a reinvention of Native American traditions. According to an employee, the store hopes not only to meet the needs of those in recovery but also to offer alternative spiritual and medicinal approaches to those dissatisfied with mainstream medicine's approach to health.

A second example of reinvented tradition is found in Swannanoa, North Carolina. A large cement dome, concealed by towering pine and oak trees, rests on the side of a mountain in Buckeye Cove. It is known to the people in

the area as The Earth Center's "peace chamber." The Earth Center is a non-profit organization created five years ago by a group of people dissatisfied with the developmental condition of the Earth. The chamber is one of thirty around the world that form a "network," connected by bands of "positive energy." This network was inspired by the vision of a Cherokee shaman named Beautiful Painted Arrow, one of the last remaining shamans in Southeastern America. His vision was brought to life by people who found refuge and hope in the shared teachings and rituals of Cherokee culture as taught by Beautiful Painted Arrow. Hoping to rejuvenate their own lives and awaken the consciousness of others, they opened the peace chamber so that the public could join in healing rituals taken from traditional Cherokee and other Native American cultures as part of a pan-Native American movement that blends many traditions and rituals. The middle-class white Americans who frequent the Earth Center have incorporated these reinterpreted rituals into their daily lives in a way that allows them to be interwoven into the modern world.

The peace chamber was built on sacred land, consecrated by Beautiful Painted Arrow, and the dome walls contain crystals believed to have specific healing properties. The chamber is generally used to cleanse or heal "Mother Earth," but is also used to heal

Glossary

Acupuncture Ancient Chinese method of healing and maintaining health by inserting fine needles at specific points in the body called Meridians. Meridians are thought to be pathways in the body for an energy force known as "qi" (pronounced "chee") that permeates the universe.

Aromatherapy Essential plant oils are inhaled, ingested and/or massaged into the body to promote healing.

Ayurveda Ancient Hindu system of diet, massage, natural medicinal remedies and meditation used to bring into balance various forces in the body believed to cause illness when they are not working in harmony with one another.

Biofeedback Machines measure the level of a variety of bodily functions, allowing individuals learn to recognize the body signals that trigger disease, and allowing them to regulate bodily functions such as

blood pressure, heart rate and muscle tension.

Colonics Cleaning the large intestine with warm water to remove impurities believed to cause illness.

Color Healing Technique of shining colored light on the body to alter its "vibrations" or "aura."

Crystals Quartz and other minerals are used in therapy because of healing energy that is purported to be derived from them.

Guided Imagery Individuals are encouraged to envision their own immune systems battling disease.

Herbalism Pharmaceutical use of plant materials as salves, teas and tinctures.

Homeopathy Medicinal use of tiny doses of natural substances that in larger amounts cause symptoms similar to the ailment being treated.

Macrobiotics Dietary discipline believed to

promote health by balancing the passive (Yin) and active (Yang) energy attributed to individual foods.

Naturopathy Treatment emphasizing use of the body's natural recuperative powers and "natural" medicines.

Osteopathy Healing by manual manipulation of the musculoskeletal system to affect the circulatory, lymph, muscle and nervous systems.

Reflexology Manipulating specific pressure points on the feet believed to promote healing and relief from pain.

Rolling Deep muscle massage believed to realign the body.

Shiatsu Massage Japanese therapeutic massage that focuses on specific pressure points on the body.

Spiritual Healing A variety of practices including channelling or the laying on of hands to manipulate unseen energy to solve mental or physical problems.

the physical, emotional or spiritual ailments of participants in Earth Center rituals. Before any healing begins, sage is burned to purify the air and the people inside the chamber, removing toxic energy that might inhibit healing.

In the ritual itself, participants chant vowel sounds. These are believed to embody purification, relativity, awareness and upliftment. As the chanters begin singing, they move collectively in a circular motion, creating what they see as a vortex of positive energy that emanates from the chamber, healing the Earth and making it a safer and healthier place to live. This ritual is emotionally healing because the chanters are reassured that they are contributing to the restoration and betterment of "Mother Earth," thereby making their own living conditions better.

The ritual for healing of individuals is similar to that of healing the Earth except that the chanters use only the vowels that appear in the person's name. The person receiving treatment lies on a mattress and enters a meditative or trance state as the chanters sing. A female chanter, specializing in "laying on of hands," leans over the individual, rubbing her hands across the person's body to draw out negative or toxic energy trapped inside. When the person being healed comes out of trance, he or she indicates that the healing has worked. The person is then covered with a warm blanket and remains horizontal to rest and regain energy.

People request this type of treatment to gain spiritual enhancement, energy, enthusiasm or the easing of physical symptoms. One man, for example, asked that the chanters heal his

sleep, eating, digestive and excretory cycles which had become irregular after his mother's death. People put faith in these folk traditions and reinvent them because they have the authority of antiquity. Even when folk traditions are modified and reinterpreted to fit the modern urban world, they still serve their purpose—to heal. Participants feel they have rediscovered the ancient wisdom of the Cherokee and that they can apply this to their daily lives, making them more fulfilling.

Terms such as "traditional" versus "modern," "folk" versus "professional," "rural" versus "urban" and "conventional" versus "unconventional" are always defined relatively. For some people, treatment in a high-tech hospital would seem unconventional while use of an herbal preparation in conjunction with the chanting of a healer feels comfortable. In urban stores such as "A Healing Path," rural and folk sources of knowledge are celebrated. These stores and healing centers such as the Earth Center appeal to an urban, middle-class, educated population because the apparent authenticity of reinvented traditions offers comfort to their adherents. While the actual content of alternative therapies varies considerably, common factors may motivate individuals to draw upon these therapies. Ultimately, it is as important for physicians to understand what motivates individuals to seek alternative therapies as it is to be familiar with the content of those therapies.

The Value of Ethnomedicine

To achieve appropriate understanding, one needs an "ethnomedical" perspective of "clinical reality"—one that includes not only the practitioner's conceptualizations of sickness but also those of the patient and the wider community.⁶ Physician and medical anthropologist Arthur Kleinman advocates ethnomedicine as "a new way of conceptualizing sickness and health care quite distinct from the biomedical framework, though in open dialogue with it." Ethnomedicine takes "the context of meaning within which sickness is labeled and experienced as its central analytic and comparative problem."⁶ pp379-80

Our goal should be to understand not only the "alternative" perspectives of patients but also the process by which perceptions of sickness are translated among patient, community and practitioner. It is particularly crucial that we facilitate open dialogue among the different systems that give meaning to clinical events today because, while biomedicine "claims dominance over the 'field of medicine,' ...in actual practice it accounts for only a small percentage of what goes on in that field."⁶ p381 Clinical reality might best be understood in anthropologist Renato Rosaldo's terms as a "busy intersection"⁷ of multiple systems of meaning. For the practitioner attempting to negotiate this busy intersection, medical anthropology provides rich resources that can help translate the myriad ways of interpreting and experiencing sickness encountered in the clinical reality of the 1990s.⁸⁻¹² □

References

- 1 Eisenberg DM, Kessler RC, Foster C, Norlock FE, Calkins DR, Delbanco TL. Unconventional medicine in the United States: prevalence, costs and patterns of use. *N Engl J Med* 1993;328:246.
- 2 Neeley S. Snowbird Cherokees--people of persistence. Athens: University of Georgia Press, 1991:68.
- 3 Rights DL. The American Indian in North Carolina. Durham: Duke University Press, 1947:214.
- 4 Keel BC. Cherokee archaeology--a study of the Appalachian summit. Knoxville: University of Tennessee Press, 1976:235-7.
- 5 Ywahoo D. Voices of our ancestors--Cherokee teachings from the wisdom fire. Boston: Shambhala, 1987.
- 6 Kleinberg A. Patients and healers in the context of culture: an exploration of the borderland between anthropology, medicine, and psychiatry. Berkeley: University of California Press, 1980.
- 7 Rosaldo R. Culture and truth: the remaking of social analysis. Boston: Beacon Press, 1989:17.
- 8 Chrisman NJ, Maretzki TW. Clinically applied anthropology: anthropologists in health science settings. Dordrecht, Holland: D Reidel Publishing Company, 1982.
- 9 Eisenberg L, Kleinman A. The Relevance of Social Science for Medicine. Dordrecht, Holland: D Reidel Publishing Company, 1981.
- 10 Hahn RA, Gaines AD. Physicians of western medicine: anthropological approaches to theory and practice. Dordrecht, Holland: D Reidel Publishing Company, 1985.
- 11 Marsella AJ, White GM. Cultural Conceptions of Mental Health and Therapy. Dordrecht, Holland: D Reidel Publishing Company, 1982.
- 12 McGuire MB. Ritual healing in suburban America. New Brunswick, NJ: Rutgers University Press, 1988.

Discover The Elegance Of A Hybrid



At first glance, it's the *beauty* of a rose that catches the eye. The vibrant color. The delicately shaped petals. But study it more closely, and its *elegance* becomes apparent—a gentle blend of softness and strength.

At first glance, it's the *enhanced performance* of Vaseretic that catches the eye. But study Vaseretic more closely, and its *elegance* becomes apparent. The way its one-tablet, once-a-day dosage minimizes multiple

medications. Minimizes insurance copayments. And minimizes potassium supplementation.

A hybrid *blending of tolerability and power* that's available for the right patient. Vaseretic is indicated for the treatment of hypertension in patients for whom combination therapy is appropriate.

And an elegant discovery for your practice.

USE IN PREGNANCY: When used in pregnancy during the second and third trimesters, ACE inhibitors can cause injury and even death to the developing fetus. When pregnancy is detected, Vaseretic® (Enalapril Maleate-Hydrochlorothiazide) should be discontinued as soon as possible. See WARNINGS, Fetal/Neonatal Morbidity and Mortality.

VASERETIC® 10-25
Enalapril Maleate-Hydrochlorothiazide

Next

Dosage must be individualized; the fixed combination is not for initial therapy.

Evaluation of the hypertensive patient should always include assessment of renal function.

For a Brief Summary of Prescribing Information, see adjacent pages.

TABLETS
VASERETIC®
(ENALAPRIL MALEATE-HYDROCHLOROTHIAZIDE)

USE IN PREGNANCY: When used in pregnancy during the second and third trimesters, ACE inhibitors can cause injury and even death to the developing fetus. When pregnancy is detected, VASERETIC (Enalapril Maleate-Hydrochlorothiazide) should be discontinued as soon as possible. See WARNINGS, Fetal/Neonatal Morbidity and Mortality.

CONTRAINDICATIONS: VASERETIC is contraindicated in patients who are hypersensitive to any component of this product and in patients with a history of angioedema related to previous treatment with an angiotensin converting enzyme inhibitor. Because of the hydrochlorothiazide component, this product is contraindicated in patients with anuria or hypersensitivity to other sulfonamide-derived drugs.

WARNINGS: General: Enalapril Maleate, Hypotension: Excessive hypotension was rarely seen in uncomplicated hypertensive patients but is a possible consequence of enalapril use in severely salt/volume depleted persons such as those treated vigorously with diuretics or patients on dialysis.

Syncope has been reported in 1.3 percent of patients receiving VASERETIC. In patients receiving enalapril alone, the incidence of syncope is 0.5 percent. The overall incidence of syncope may be reduced by proper titration of the individual components. (See PRECAUTIONS, Drug Interactions, and ADVERSE REACTIONS.)

In patients with severe congestive heart failure, with or without associated renal insufficiency, excessive hypotension has been observed and may be associated with oliguria and/or progressive azotemia, and rarely with acute renal failure and/or death. Because of the potential fall in blood pressure in these patients, therapy should be started under very close medical supervision. Such patients should be followed closely for the first two weeks of treatment and whenever the dose of enalapril and/or diuretic is increased. Similar considerations may apply to patients with ischemic heart or cerebrovascular disease, in whom an excessive fall in blood pressure could result in a myocardial infarction or cerebrovascular accident.

If hypotension occurs, the patient should be placed in the supine position and, if necessary, receive an intravenous infusion of normal saline. A transient hypotensive response is not a contraindication to further doses, which usually can be given without difficulty once the blood pressure has increased after volume expansion.

Angioedema: Angioedema of the face, extremities, lips, tongue, glottis and/or larynx has been reported in patients treated with angiotensin converting enzyme inhibitors, including enalapril. In such cases VASERETIC should be promptly discontinued and appropriate therapy and monitoring should be provided until complete and sustained resolution of signs and symptoms has occurred. In instances where swelling has been confined to the face and lips the condition has generally resolved without treatment, although antihistamines have been useful in relieving symptoms. Angioedema associated with laryngeal edema may be fatal. Where there is involvement of the tongue, glottis or larynx, likely to cause airway obstruction, appropriate therapy, e.g., subcutaneous epinephrine solution 1:1000 (0.3 mL to 0.5 mL) and/or measures necessary to ensure a patent airway, should be promptly provided. (See ADVERSE REACTIONS.)

Patients with a history of angioedema unrelated to ACE inhibitor therapy may be at increased risk of angioedema while receiving an ACE inhibitor (see also CONTRAINDICATIONS).

Neutropenia/Agranulocytosis: Another angiotensin converting enzyme inhibitor, captopril, has been shown to cause agranulocytosis and bone marrow depression, rarely in uncomplicated patients but more frequently in patients with renal impairment especially if they also have a collagen vascular disease. Available data from clinical trials of enalapril are insufficient to show that enalapril does not cause agranulocytosis at similar rates. Marketing experience has revealed several cases of neutropenia or agranulocytosis in which a causal relationship to enalapril cannot be excluded. Periodic monitoring of white blood cell counts in patients with collagen vascular disease and renal disease should be considered.

Hydrochlorothiazide: Thiazides should be used with caution in severe renal disease. In patients with renal disease, thiazides may precipitate azotemia. Cumulative effects of the drug may develop in patients with impaired renal function.

Thiazides should be used with caution in patients with impaired hepatic function or progressive liver disease, since minor alterations of fluid and electrolyte balance may precipitate hepatic coma.

Sensitivity reactions may occur in patients with or without a history of allergy or bronchial asthma.

The possibility of exacerbation or activation of systemic lupus erythematosus has been reported.

Lithium generally should not be given with thiazides (see PRECAUTIONS, Drug Interactions, Enalapril Maleate and Hydrochlorothiazide).

Pregnancy: Enalapril-Hydrochlorothiazide: There was no teratogenicity in rats given up to 90 mg/kg/day of enalapril (150 times the maximum human dose) in combination with 10 mg/kg/day of hydrochlorothiazide (2 1/2 times the maximum human dose) or in mice given up to 30 mg/kg/day of enalapril (50 times the maximum human dose) in combination with 10 mg/kg/day of hydrochlorothiazide (2 1/2 times the maximum human dose). At these doses, fetotoxicity expressed as a decrease in average fetal weight occurred in both species. No fetotoxicity occurred at lower doses; 30/10 mg/kg/day of enalapril-hydrochlorothiazide in rats and 10/10 mg/kg/day of enalapril-hydrochlorothiazide in mice.

When used in pregnancy during the second and third trimesters, ACE inhibitors can cause injury and even death to the developing fetus. When pregnancy is detected, VASERETIC should be discontinued as soon as possible. (See Enalapril Maleate, Fetal/Neonatal Morbidity and Mortality, below.) Enalapril Maleate, Fetal/Neonatal Morbidity and Mortality: ACE inhibitors can cause fetal and neonatal morbidity and death when administered to pregnant women. Several dozen cases have been reported in the world literature. When pregnancy is detected, ACE inhibitors should be discontinued as soon as possible.

The use of ACE inhibitors during the second and third trimesters of pregnancy has been associated with fetal and neonatal injury, including hypotension, neonatal skull hypoplasia, anuria, reversible or irreversible renal failure, and death. Oligohydramnios has also been reported, presumably resulting from decreased fetal renal function, oligohydramnios in this setting has been associated with fetal limb contractures, craniofacial deformation, and hypoplastic lung development. Prematurity, intrauterine growth retardation, and patent ductus arteriosus have also been reported, although it is not clear whether these occurrences were due to the ACE-inhibitor exposure.

These adverse effects do not appear to have resulted from intrauterine ACE-inhibitor exposure that has been limited to the first trimester. Mothers whose embryos and fetuses are exposed to ACE inhibitors only during the first trimester should be so informed. Nonetheless, when patients become pregnant, physicians should make every effort to discontinue the use of VASERETIC as soon as possible.

Rarely (probably less often than once in every thousand pregnancies), no

10
mg



25
mg

alternative to ACE inhibitors will be found. In these rare cases, the mothers should be apprised of the potential hazards to their fetuses, and serial ultrasound examinations should be performed to assess the intraamniotic environment.

If oligohydramnios is observed, VASERETIC should be discontinued unless it is considered lifesaving for the mother. Contraction stress testing (CST), a non-stress test (NST), or biophysical profiling (BPP) may be appropriate, depending upon the week of pregnancy. Patients and physicians should be aware, however, that oligohydramnios may not appear until after the fetus has sustained irreversible injury.

Infants with histories of *in utero* exposure to ACE inhibitors should be closely observed for hypotension, oliguria, and hyperkalemia. If oliguria occurs, attention should be directed toward support of blood pressure and renal perfusion. Exchange transfusion or dialysis may be required as means of reversing hypotension and/or substituting for disordered renal function. Enalapril, which crosses the placenta, has been removed from neonatal circulation by peritoneal dialysis with some clinical benefit, and theoretically may be removed by exchange transfusion, although there is no experience with the latter procedure.

No teratogenic effects of enalapril were seen in studies of pregnant rats and rabbits. On a mg/kg basis, the doses used were up to 333 times (in rats), and 50 times (in rabbits) the maximum recommended human dose.

Hydrochlorothiazide, Teratogenic Effects: Reproduction studies in the rabbit, the mouse and the rat at doses up to 100 mg/kg/day (50 times the human dose) showed no evidence of external abnormalities of the fetus due to hydrochlorothiazide. Hydrochlorothiazide given in a two-liter study in rats at doses of 4 - 5.6 mg/kg/day (approximately 1 - 2 times the usual daily human dose) did not impair fertility or produce birth abnormalities in the offspring. Thiazides cross the placental barrier and appear in cord blood.

Neonatal Effects: These may include fetal or neonatal jaundice, thrombocytopenia, and possibly other adverse reactions which have occurred in the adult.

PRECAUTIONS: General: Enalapril Maleate: Impaired Renal Function: As a consequence of inhibiting the renin-angiotensin-aldosterone system, changes in renal function may be anticipated in susceptible individuals. In patients with severe congestive heart failure whose renal function may depend on the activity of the renin-angiotensin-aldosterone system, treatment with angiotensin converting enzyme inhibitors, including enalapril, may be associated with oliguria and/or progressive azotemia and rarely with acute renal failure and/or death.

In clinical studies in hypertensive patients with unilateral or bilateral renal artery stenosis, increases in blood urea nitrogen and serum creatinine were observed in 20 percent of patients. These increases were almost always reversible upon discontinuation of enalapril and/or diuretic therapy. In such patients renal function should be monitored during the first few weeks of therapy.

Some patients with hypertension or heart failure with no apparent pre-existing renal vascular disease have developed increases in blood urea and serum creatinine, usually minor and transient, especially when enalapril has been given concomitantly with a diuretic. This is more likely to occur in patients with pre-existing renal impairment. Dosage reduction of enalapril and/or discontinuation of the diuretic may be required.

Evaluation of the hypertensive patient should always include assessment of renal function.

Hemodialysis Patients: Anaphylactoid reactions have been reported in patients dialyzed with high-flux membranes (e.g., AN 69) and treated concomitantly with an ACE inhibitor. In these patients consideration should be given to using a different type of dialysis membrane or a different class of antihypertensive agent.

Hyperkalemia: Elevated serum potassium (greater than 5.7 mEq/L) was observed in approximately one percent of hypertensive patients in clinical trials treated with enalapril alone. In most cases these were isolated values which resolved despite continued therapy, although hyperkalemia was a cause of discontinuation of therapy in 0.25 percent of hypertensive patients. Hyperkalemia was less frequent (approximately 0.1 percent) in patients treated with enalapril plus hydrochlorothiazide. Risk factors for the development of hyperkalemia include renal insufficiency, diabetes mellitus, and the concomitant use of potassium-sparing diuretics, potassium supplements and/or potassium-containing salt substitutes, which should be used cautiously, if at all, with enalapril. (See Drug Interactions.)

Cough: Cough has been reported with the use of ACE inhibitors. Characteristically, the cough is nonproductive, persistent and resolves after discontinuation of therapy. ACE inhibitor-induced cough should be considered as part of the differential diagnosis of cough.

Surgery/Anesthesia: In patients undergoing major surgery or during anesthesia with agents that produce hypotension, enalapril may block angiotensin II formation secondary to compensatory renin release. If hypotension occurs and is considered to be due to this mechanism, it can be corrected by volume expansion.

Hydrochlorothiazide: Periodic determination of serum electrolytes to detect possible electrolyte imbalance should be performed at appropriate intervals. All patients receiving thiazide therapy should be observed for clinical signs of fluid or electrolyte imbalance: hypotension, hyponatremia, hypochloremic alkalosis, and hypokalemia. Serum and urine electrolyte determinations are particularly important when the patient is vomiting excessively or receiving parenteral fluids. Warning signs or symptoms of fluid and electrolyte imbalance, irrespective of cause, include dryness of mouth, thirst, weakness, lethargy, drowsiness, restlessness, confusion, seizures, muscle pains or cramps, muscular fatigue, hypotension, oliguria, tachycardia, and gastrointestinal disturbances such as nausea and vomiting.

Hyperkalemia may develop, especially with brisk diuresis, when severe cirrhosis is present, or after prolonged therapy. Interference with adequate oral electrolyte intake will also contribute to hyperkalemia. Hyperkalemia may cause cardiac arrhythmia and may also sensitize or exaggerate the response of the heart to the toxic effects of digitalis (e.g., increased ventricular irritability). Because enalapril reduces the production of aldosterone, concomitant therapy with enalapril attenuates the diuretic-induced potassium loss (see Drug Interactions, Agents Increasing Serum Potassium).

Although any chloride deficit is generally mild and usually does not require specific treatment except under extraordinary circumstances (as in liver disease or renal disease), chloride replacement may be required in the

treatment of metabolic alkalosis.

Dilutional hyponatremia may occur in edematous patients in hot weather; appropriate therapy is water restriction, rather than administration of salt except in rare instances when the hyponatremia is life-threatening. In actual salt depletion, appropriate replacement is the therapy of choice.

Hypernatremia may occur or frank gout may be precipitated in certain patients receiving thiazide therapy.

In diabetic patients dosage adjustments of insulin or oral hypoglycemic agents may be required. Hyperglycemia may occur with thiazide diuretics. Thus latent diabetes mellitus may become manifest during thiazide therapy.

The antihypertensive effects of the drug may be enhanced in the postmyopathic patient.

If progressive renal impairment becomes evident consider withholding or discontinuing diuretic therapy.

Thiazides have been shown to increase the urinary excretion of magnesium; thus may result in hypomagnesemia.

Thiazides may decrease urinary calcium excretion. Thiazides may cause intermittent and slight elevation of serum calcium in the absence of known disorders of calcium metabolism. Marked hypercalcemia may be evidence of hidden hyperparathyroidism. Thiazides should be discontinued before carrying out tests for parathyroid function.

Increases in cholesterol and triglyceride levels may be associated with thiazide diuretic therapy.

Information for Patients: Angioedema: Angioedema, including laryngeal edema, may occur especially following the first dose of enalapril. Patients should be so advised and told to report immediately any signs or symptoms suggesting angioedema (swelling of face, extremities, eyes, lips, tongue, difficulty in swallowing or breathing) and to take no more drug until they have consulted with the prescribing physician.

Hypotension: Patients should be cautioned to report lightheadedness especially during the first few days of therapy. If actual syncope occurs, the patient should be told to discontinue the drug until they have consulted with the prescribing physician.

All patients should be cautioned that excessive perspiration and dehydration may lead to an excessive fall in blood pressure because of reduction in fluid volume. Other causes of volume depletion such as vomiting or diarrhea may also lead to a fall in blood pressure; patients should be advised to consult with the physician.

Hyperkalemia: Patients should be told not to use salt substitutes containing potassium without consulting their physician.

Neutropenia: Patients should be told to report promptly any indication of infection (e.g., sore throat, fever) which may be a sign of neutropenia.

Pregnancy: Female patients of childbearing age should be told about the consequences of second- and third-trimester exposure to ACE inhibitors, and they should also be told that these consequences do not appear to have resulted from intrauterine ACE-inhibitor exposure that has been limited to the first trimester. These patients should be asked to report pregnancies to their physicians as soon as possible.

NOTE: As with many other drugs, certain advice to patients being treated with VASERETIC is warranted. This information is intended to aid in the safe and effective use of this medication. It is not a disclosure of all possible adverse or intended effects.

Drug Interactions: Enalapril Maleate; Hypotension—Patients on Diuretic Therapy: Patients on diuretics and especially those in whom diuretic therapy was recently instituted, may occasionally experience an excessive reduction of blood pressure after initiation of therapy with enalapril. The possibility of hypotensive effects with enalapril can be minimized by either discontinuing the diuretic or increasing the salt intake prior to initiation of treatment with enalapril. If it is necessary to continue the diuretic, provide medical supervision for at least two hours and until blood pressure has stabilized for at least an additional hour. (See WARNINGS.)

Agents Causing Renin Release: The antihypertensive effect of enalapril is augmented by antihypertensive agents that cause renin release (e.g., diuretics).

Other Cardiovascular Agents: Enalapril has been used concomitantly with beta adrenergic-blocking agents, methyldopa, nitrates, calcium-blocking agents, hydralazine and prazosin without evidence of clinically significant adverse interactions.

Agents Increasing Serum Potassium: Enalapril attenuates diuretic-induced potassium loss. Potassium-sparing diuretics (e.g., spironolactone, triamterene, or amiloride), potassium supplements, or potassium-containing salt substitutes may lead to significant increases in serum potassium. Therefore, if concomitant use of these agents is indicated because of demonstrated hypokalemia they should be used with caution and with frequent monitoring of serum potassium.

Lithium: Lithium toxicity has been reported in patients receiving lithium concomitantly with drugs which cause elimination of sodium, including ACE inhibitors. A few cases of lithium toxicity have been reported in patients receiving concomitant enalapril and lithium and were reversible upon discontinuation of both drugs. It is recommended that serum lithium levels be monitored frequently if enalapril is administered concomitantly with lithium. Hydrochlorothiazide: When administered concurrently the following drugs may interact with thiazide diuretics:

Alcohol, barbiturates, or narcotics:—potentiation of orthostatic hypotension may occur.

Antidiabetic drugs (oral agents and insulin):—dosage adjustment of the antidiabetic drug may be required.

Other antihypertensive drugs:—additive effect or potentiation.

Cholestyramine and colestipol resins:—Absorption of hydrochlorothiazide is impaired in the presence of anionic exchange resins. Single doses of either cholestyramine or colestipol resins bind the hydrochlorothiazide and reduce its absorption from the gastrointestinal tract by up to 85 and 43 percent, respectively.

Corticosteroids, ACTH:—intensified electrolyte depletion, particularly hypokalemia.

Pressor amines (e.g., norepinephrine):—possible decreased response to pressor amines but not sufficient to preclude their use.

Skeletal muscle relaxants, nondepolarizing (e.g., tubocurarine):—possible increased responsiveness to the muscle relaxant.

Lithium:—should not generally be given with diuretics. Diuretic agents reduce the renal clearance of lithium and add a high risk of lithium toxicity. Refer to the package insert for lithium preparations before use of such preparations with VASERETIC.

Non-steroidal Anti-inflammatory Drugs:—In some patients, the administration of a non-steroidal anti-inflammatory agent can reduce the diuretic, natriuretic, and antihypertensive effects of loop, potassium-sparing and thiazide diuretics. Therefore, when VASERETIC and non-steroidal anti-inflammatory agents are used concomitantly, the patient should be observed closely to determine if the desired effect of the diuretic is obtained.

Carcinogenesis, Mutagenesis, Impairment of Fertility: Enalapril in combination with hydrochlorothiazide was not mutagenic in the Ames microbial mutagen test with or without metabolic activation. Enalapril-hydrochlorothiazide did not produce DNA single strand breaks in an *in vitro* alkaline elution assay in rat hepatocytes or chromosomal aberrations in an *in vitro* mouse

® Registered trademark of Hospal Ltd.

bone marrow assay.

Enalapril Maleate. There was no evidence of a tumorigenic effect when enalapril was administered for 18 weeks to rats at doses up to 90 mg/kg/day (150 times* the maximum daily human dose). Enalapril has also been administered for 94 weeks to male and female mice at doses up to 90 and 180 mg/kg/day, respectively, (150 and 300 times* the maximum daily dose for humans) and showed no evidence of carcinogenicity.

Neither enalapril maleate nor the active diacid was mutagenic in the Ames microbial mutagen test with or without metabolic activation. Enalapril was also negative in the following genotoxicity studies: reverse mutation assay with *E. coli*, sister chromatid exchange with cultured mammalian cells, and the micronucleus test with mice, as well as in an *in vitro* cytogenetic study using mouse bone marrow.

There were no adverse effects on reproductive performance in male and female rats treated with 10 to 90 mg/kg/day of enalapril.

Hydrochlorothiazide. Two-year feeding studies in mice and rats conducted under the auspices of the National Toxicology Program (NTP) uncovered no evidence of a carcinogenic potential of hydrochlorothiazide in female mice (at doses of up to approximately 600 mg/kg/day) or in male and female rats (at doses of up to approximately 100 mg/kg/day). The NTP, however, found equivocal evidence for hepatocarcinogenicity in male mice.

Hydrochlorothiazide was not genotoxic *in vitro* in the Ames mutagenicity assay of *Salmonella typhimurium* strains TA 98, TA 100, TA 1535, TA 1537, and TA 1538 and in the Chinese Hamster Ovary (CHO) test for chromosomal aberrations, or *in vivo* in assays using mouse germinal cell chromosomes, Chinese hamster bone marrow chromosomes, and the *Drosophila* sex-linked recessive lethal trait gene. Positive test results were obtained only in the *in vitro* CHO Sister Chromatid Exchange (clastogenicity) and in the Mouse Lymphoma Cell (mutagenicity) assays, using concentrations of hydrochlorothiazide from 45 to 1300 µg/mL, and in the *Aspergillus nidulans* non-disjunction assay at an unspecified concentration.

Hydrochlorothiazide had no adverse effects on the fertility of mice and rats of either sex in studies wherein these species were exposed, via their diet, to doses of up to 100 and 4 mg/kg, respectively, prior to conception and throughout gestation.

Pregnancy. Pregnancy Categories C (first trimester) and D (second and third trimesters). See WARNINGS, Pregnancy, Enalapril Maleate, Fetal/Neonatal Morbidity and Mortality.

Nursing Mothers. Enalapril and enalapril are detected in human milk in trace amounts. Thiazides do appear in human milk. Because of the potential for serious reactions in nursing infants from either drug, a decision should be made whether to discontinue nursing or to discontinue VASERETIC, taking into account the importance of the drug to the mother.

Pediatric Use. Safety and effectiveness in children have not been established.

ADVERSE REACTIONS: VASERETIC has been evaluated for safety in more than 1500 patients, including over 300 patients treated for one year or more. In clinical trials with VASERETIC no adverse experiences peculiar to this combination drug have been observed. Adverse experiences that have occurred, have been limited to those that have been previously reported with enalapril or hydrochlorothiazide.

The most frequent clinical adverse experiences in controlled trials were: dizziness (8.6 percent), headache (5.5 percent), fatigue (3.9 percent) and cough (3.5 percent). Adverse experiences occurring in greater than two percent of patients treated with VASERETIC in controlled clinical trials were: muscle cramps (2.7 percent), nausea (2.5 percent), asthenia (2.4 percent), orthostatic effects (2.3 percent), impotence (2.2 percent), and diarrhea (2.1 percent).

Clinical adverse experiences occurring in 0.5 to 2.0 percent of patients in controlled trials included: **Body As A Whole:** Syncope, chest pain, abdominal pain, **Cardiovascular:** Orthostatic hypotension, palpitation, tachycardia; **Digestive:** Vomiting, dyspepsia, constipation, flatulence, dry mouth, **Nervous/Psychiatric:** Insomnia, nervousness, paresthesia, somnolence, vertigo; **Skin:** Pruritus, rash; **Other:** Dyspnea, gout, back pain, arthralgia, diaphoresis, decreased libido, trinitus, urinary tract infection.

Angioedema: Angioedema has been reported in patients receiving VASERETIC (0.6 percent). Angioedema associated with laryngeal edema may be fatal. If angioedema of the face, extremities, lips, tongue, glottis and/or larynx occurs, treatment with VASERETIC should be discontinued and appropriate therapy instituted immediately. (See WARNINGS.)

Hypotension: In clinical trials, adverse effects relating to hypotension occurred as follows: hypotension (0.9 percent), orthostatic hypotension (1.5 percent), other orthostatic effects (2.3 percent). In addition syncope occurred in 1.3 percent of patients. (See WARNINGS.)

Cough: See PRECAUTIONS, Cough.

Clinical Laboratory Test Findings: Serum Electrolytes: See PRECAUTIONS.

Creatinine, Blood Urea Nitrogen: In controlled clinical trials minor increases in blood urea nitrogen and serum creatinine, reversible upon discontinuation of therapy, were observed in about 0.6 percent of patients with essential hypertension treated with VASERETIC. More marked increases have been reported in other enalapril experience. Increases are more likely to occur in patients with renal artery stenosis. (See PRECAUTIONS.)

Serum Uric Acid, Glucose, Magnesium, and Calcium: See PRECAUTIONS.

Hemoglobin and Hematocrit: Small decreases in hemoglobin and hematocrit (mean decreases of approximately 0.3 g percent and 1.0 vol percent, respectively) occur frequently in hypertensive patients treated with VASERETIC but are of clinical importance unless another cause of anemia coexists. In clinical trials, less than 0.1 percent of patients discontinued therapy, due to anemia.

Liver Function Tests: Rarely, elevation of liver enzymes and/or serum bilirubin have occurred.

Other adverse reactions that have been reported with the individual components are listed below and, within each category, are in order of decreasing severity.

Enalapril Maleate—Enalapril has been evaluated for safety in more than 10,000 patients. In clinical trials adverse reactions which occurred with enalapril were also seen with VASERETIC. However, since enalapril has been marketed, the following adverse reactions have been reported: **Body As A Whole:** Anaphylactoid reactions (see PRECAUTIONS, Hemodialysis Patients); **Cardiovascular:** Cardiac arrest, myocardial infarction or cerebrovascular accident, possibly secondary to excessive hypotension in high risk patients (see WARNINGS, Hypotension); pulmonary embolism and infarction; pulmonary edema, rhythm disturbances including atrial tachycardia and bradycardia; atrial fibrillation; hypotension; angina pectoris; **Digestive:** Ileus, pancreatitis, hepatic failure, hepatitis (hepatocellular [proven on rechallenge] or cholestatic jaundice), melena, anorexia, glossitis, stomatitis, dry mouth; **Hematologic:** Rare cases of neutropenia, thrombocytopenia and bone marrow depression. Hemolytic anemia, including cases of hemolysis in patients with G-6-PD deficiency, has been reported; a causal relationship to enalapril has not been established. **Nervous System/Psychiatric:** Depression, confusion, ataxia, peripheral neuropathy (e.g., paresthesia, dysesthesia); **Urogenital:** Renal failure, oliguria, renal dysfunction (see PRECAUTIONS), flank pain, gynecomastia; **Respiratory:** Pulmonary infiltrates, bronchospasm, pneumonia, bronchitis, rhinorrhea, sore throat and hoarseness, asthma, upper respiratory infection; **Skin:** Exfoliative dermatitis, toxic epidermal necrolysis, Stevens-Johnson syndrome, herpes zoster, erythema multiforme, urticaria, pemphigus, alopecia, flushing, photosensitivity; **Special Senses:** Blurred vision, taste alteration, anosmia, conjunctivitis, dry eyes, tearing.

Miscellaneous: A symptom complex has been reported which may include a positive ANA, an elevated erythrocyte sedimentation rate, arthralgia/arthritis, myalgia/myositis, fever, serositis, vasculitis, leukocytosis, eosinophilia, photosensitivity, rash and other dermatologic manifestations.

Fetal/Neonatal Morbidity and Mortality: See WARNINGS, Pregnancy, Enalapril Maleate; Fetal/Neonatal Morbidity and Mortality.

Hydrochlorothiazide—Body As A Whole: Weakness; **Digestive:** Pancreatitis, jaundice (intrahepatic cholestatic jaundice), sialadenitis, cramping, gastric irritation, anorexia; **Hematologic:** Aplastic anemia, agranulocytosis, leukopenia, hemolytic anemia, thrombocytopenia; **Hypersensitivity:** Purpura, photosensitivity, urticaria, necrotizing angitis (vasculitis and cutaneous vasculitis), fever, respiratory distress including pneumonitis and pulmonary edema, anaphylactic reactions; **Musculoskeletal:** Muscle spasm; **Nervous System/Psychiatric:** Restlessness; **Renal:** Renal failure, renal dysfunction, interstitial nephritis (see WARNINGS); **Skin:** Erythema multiforme including Stevens-Johnson syndrome, exfoliative dermatitis including toxic epidermal necrolysis, alopecia, **Special Senses:** Transient blurred vision, xanthopsia.

* Based on patient weight of 50 kg.

For more detailed information, consult your DuPont Pharm Representative or see Prescribing Information.

Dist. by



MERCK & CO., INC.
West Point, PA 19486, USA

Printed in USA

Issued June 1993
7432318

Classified Advertisements

URGENT CARE - Immediate opportunity for FP/GP/IM.

Forty hour weeks, competitive compensation, independent contractor status. Stable organization since 1979 with strong commitment to quality urgent care and industrial medicine. Clifford K. Callaway, MD, PO Box 667967, Charlotte, NC 28266. 704/521-5075

RALEIGH, NC: Practice opportunity. Join three pediatrician-group in educational, cultural city. Teaching opportunities, consultations at nearby medical centers. Inquire

Oberlin Road Pediatrics, 1321 Oberlin Road, Raleigh, NC 27608, or call Mary Anne Clark at 919/828-4747.

JAMESTOWN: Busy ambulatory care centers here and in

Danville, VA, seek BC/BE Family or Emergency medicine practitioners. Excellent salary/benefits package. Send CV: Dr. William Ameen, PO Box 1176, Jamestown, NC 27282.

THE BANANA PEEL: A business management newsletter

containing inside information drawn from physicians' experiences. Call 1-800/SLIPUPS or write The Banana Peel, 2177 Barry Drive, Fort Myers, FL 33907 for your complimentary copy. (ISSN 1069-9449)

HAPPINESS AND PROFESSIONAL SATISFACTION

FOR TWO: A workshop for physicians and their spouses concerned with burnout. St. Christopher Conference Center on Seabrook Island, S.C. Encore of a previous highly praised workshop. Attendance limited. CME credits. November 12-14, 1993. Call or write Donald E. Saunders, Jr., M.D., USC School of Medicine, 3555 Harden St. Ext., Columbia, SC 29208. 803/434-4214

CAROLINA! Have you ever considered moving to beautiful

Charlotte, North Carolina? Our practice is growing, dynamic, and focused on developing programs to meet the medical needs of the nineties. Our practice emphasizes general neurology, inpatient general medical rehabilitation and neurorehabilitation, and comprehensive pain management. We are in need of an energetic, motivated, and creative neurologist who enjoys hard work, feels compassion for his patients, and strives always to maintain the highest level of professional service. Send your CV to Ronald C. Demas, M.D., 2219 East Seventh Street, Charlotte, NC 28204. We look forward to hearing from you.

NORTH CAROLINA STATE UNIVERSITY, Student Health Service desires BC/BE physician in FP, IM or PED

with experience in office GYN and sports medicine. Attractive benefits (CME, malpractice, retirement, health insurance, 24 days annual leave, etc.). Student Health has eight physicians, four NPs, lab/x-ray and pharmacy. Raleigh is a highly desirable living area. Send letter of interest, CV, name, address, phone number for three references to Administrative Director, Student Health Service, NCSU, Box 7304, Raleigh, NC 27695.

PHYSICIAN'S ASSISTANT - INTERNAL MEDICINE & FAMILY PRACTICE: to join two physicians rural health clinic Bertie County in Windsor, NC. You will have independent practice office/nursing home/emergency department of local hospital with physician supervision and working with two other PA-C's. Beginning salary \$65,000 + benefits. Contact L.E. Reaves, III, M.D. of Bertie Medical Center, 601 Sterlingworth Street in Windsor, NC 27983. Tel. 919/794-3317

EMERGENCY MEDICINE - THE CAROLINAS: Positions are available for ED Medical Directors and full-time staff physicians at several clients in North and South Carolina. Opportunities in North Carolina include two affiliated hospitals with annual ED volumes of 23,000 and 21,000 in Burlington; Hamlet located one hour from Charlotte and an hour and a half to the ocean; Louisburg, located only 35 minutes from Raleigh; and Mooresville located near Lake Norman and 30 minutes from Charlotte. Lancaster, South Carolina, with an annual ED volume of 23,000, is located a half hour from Charlotte. Spectrum offers independent contract physicians a competitive hourly rate and participation in our occurrence-based malpractice insurance program. Directors also receive health benefits, administrative stipend and participation in a retirement plan after 12 months. Contact Joyce Solomon, Spectrum Emergency care, 1-800/325-3982, ext. 3011.

*For Classified Advertising rates and information, call the **North Carolina Medical Journal** at 919-286-6412. You may also fax ad copy to 919-286-9219.*

EXCELLENT PRACTICE OPPORTUNITY FOR BOARD CERTIFIED INTERNIST

Internal Medicine practice in Burlington, North Carolina seeks a BC/BE Internist to join an established and growing practice. Alamance County is a thriving community that offers excellent quality of life, and is located less than 45 minutes from Greensboro, Durham, Chapel Hill, and Raleigh. A new state-of-the-art regional hospital now under construction. Call scheduled one day per week, one weekend per month. Competitive starting salary, benefits, and flexible partnership options. Send CV in confidentiality to:

Alamance Internal Medicine
711 Hermitage Road Burlington, NC 27215
Or call 919 538-1003

LPOCAMSINC!

**LOWEST
PRICES
ON
COMPUTERS
AND
MEDICAL
SOFTWARE
IN
NORTH
CAROLINA!**

COME
VISIT
OUR
EXHIBIT
AT THE
139TH
MEETING
IN
NOV. 5
AND 6

**G
U
A
R
A
N
T
E
E
D
!**

We offer turnkey hardware and software installations of comprehensive medical office computers at reasonable prices that include billing, accounts receivable/payable, scheduling, detailed practice analysis and reports, and electronic claims.

ValuSystems

MEDICAL OFFICE AUTOMATION

919 538-4991

Continuing Medical Education

October 15-16

Growth, Stature and Adaptation: An International Symposium on the Behavioral, Social & Cognitive Aspects of Growth Delay

Place: Chapel Hill

Credit: 11.0 hours Category I, AMA

Info: CME Office, CB #7000, 231 MacNider Building, UNC School of Medicine, Chapel Hill, NC 27599-7000. 919/962-2118

October 16

Mammography Quality Control

Place: Asheville

Credit: 8.75 hours Category I, AMA

Info: CME Office, CB #7000, 231 MacNider Building, UNC School of Medicine, Chapel Hill, NC 27599-7000. 919/962-2118

October 22-24

14th Mountain Medical Meeting

Place: Asheville

Credit: 12 hours Category I, AMA

Info: Division of CME, Bowman Gray School of Medicine. 919/716-4450 or 1-800/277-7654

October 22-24

Musculoskeletal Pathology Review

1993: A Clinician's Approach

Place: Winston-Salem

Credit: 20 hours Category I, AMA

Info: Division of CME, Bowman Gray School of Medicine. 919/716-4450 or 1-800/277-7654

October 23

Symposium on Minority Health

Issues - Treating the Patient, Not Just the Disease: A Multidisciplinary Approach

Place: Durham

Credit: 7 hours CME/CEU, AAPA

Info: James H. Carter, Jr., PA, 919/

Guidelines for Continuing Medical Education: The Journal provides free listings of workshops, courses, and other events approved for CME credit. We will run the listing for a maximum of three months prior to the event. Each event must include the following information: date, title, place, number of credit hours, fees, and name, address, and phone number of contact person. Send to: Continuing Medical Education, *North Carolina Medical Journal*, Box 3910 DUMC, Durham, NC 27710; or fax to: 919-286-9219.

684-2937

October 24-27

15th Annual Meeting of the Society for Medical Decision Making

Place: Raleigh/Durham

Credit: 26 hours of Category I, AMA

Fee: \$225 - member; \$250 - non-member; \$110 students

Info: Maria Gorrick, SMDM, Office of CME, 2300 K. Street, NW, Washington, DC 20037. 202/994-4285, 202/994-1701

October 29

5th Annual Clinical Cancer Symposium: Challenges in the Prevention and Treatment of Bronchogenic Carcinoma

Place: Chapel Hill

Credit: 5.5 hours Category I, AMA

Info: CME Office, CB #7000, 231 MacNider Building, UNC School of Medicine, Chapel Hill, NC 27599-7000. 919/962-2118

October 29-30

Fall Medical Alumni Weekend

Place: Chapel Hill

Info: CME Office, CB #7000, 231 MacNider Building, UNC School of Medicine, Chapel Hill, NC 27599-7000. 919/962-2118

October 29-31

Seventh Biennial Teaching Internal Medicine Symposium - Association of Professors of Internal Medicine and Association of Program Directors of Internal Medicine

Place: Research Triangle Park

Credit: 12.5 hours Category I, AMA

Info: CME Office, CB #7000, 231 MacNider Building, UNC

School of Medicine, Chapel Hill, NC 27599-7000. 919/962-2118

November 3-5

Second International Symposium on Inhibitors to Coagulation Factors

Place: Chapel Hill

Credit: 15.0 hours Category I, AMA

Fee: \$300

Info: Office of CME, UNC School of Medicine, CB #7000, Chapel Hill

NC 27599-7000. 919/962-2118

November 4-5

Comprehensive Management of HIV Disease: A Clinical Tutorial for Physicians

Place: Chapel Hill

Credit: 16.5 hours Category I, AMA

Info: Office of CME, UNC School of Medicine, CB #7000, Chapel Hill NC 27599-7000. 919/962-2118

November 5-6

Current Therapy in Vascular Surgery

Place: Chapel Hill

Credit: 10.8 hours Category I, AMA

Info: Office of CME, UNC School of Medicine, CB #7000, Chapel Hill NC 27599-7000. 919/962-2118

November 10

Healthy Carolinians 2000

Place: Durham

Fee: \$50

Info: Phylliss Woody, Office of Continuing Education, UNC School of Public Health, CB #8165, Miller Hall, Chapel Hill, NC 27599-8165. 919/966-4032

November 12

Current Topics in Gastroenterology for the Specialist and the Generalist Physician

Place: Chapel Hill

Credit: 5.75 hours Category I, AMA

Info: Office of CME, UNC School of Medicine, CB #7000, Chapel Hill NC 27599-7000. 919/962-2118

November 12

Electromagnetic Fields: Health Effects and Risk Communication

Place: Chapel Hill

Fee: \$40

Info: Phylliss Woody, Office of Continuing Education, UNC School of Public Health, CB #8165, Miller Hall, Chapel Hill, NC 27599-8165. 919/966-4032

November 12-13

BGSM Alumni Weekend

Place: Winston-Salem

Credit: 4 hours Category I, AMA

Info: Division of CME, Bowman Gray

November 13-14

George Ham Psychiatry Society Meeting

Place: Chapel Hill

Info: Office of CME, UNC School of Medicine, CB #7000,
Chapel Hill NC 27599-7000. 919/962-2118

November 13-14

Advanced Cardiac Life Support Course

Place: Chapel Hill

Credit: 15.5 hours Category I, AMA

Info: Office of CME, UNC School of Medicine, CB #7000,
Chapel Hill NC 27599-7000. 919/962-2118

November 19-20

Practical Approach to the Diagnosis and Treatment of Lung and Gut Problems in Children

Place: Durham

Credit: hours pending

Fee: \$150

Info: Joseph Marc Majure, M.D., DUMC, Box 2994, Durham,
NC 27710. 919/684-2289, 3364; Fax 919/684-2292

November 19-21

Winter Family Physicians Weekend

Place: Asheville

Info: Rodney Webb, Director of CME, NCAFP, PO Box
18469, Raleigh, NC 27619. 919/781-6467

December 2-3

Advanced Trauma Life Support

Place: Greenville

Credit: 17 hours Category I, AMA

Info: Kay Cyrus, Department of Emergency Medicine, ECU
School of Medicine, Greenville 27858. 919/551-2154

December 4

UNC Ophthalmology Residents' Day

Place: Chapel Hill

Credit: 3.5 hours Category I, AMA

Fee: None

Info: Ms. Christine C. Cotton, Department of Ophthalmol-
ogy, CB #7040, 617 Burnett-Womack Building, UNC,
Chapel Hill NC 27599-7040. 919/966-5296

Moving?

If you are planning to move within the next two months, let us
know where we can send your **North Carolina Medical Journal**.

Print your old address here or attach a mailing label:

Name _____

Old Address _____

City _____

Zip _____

Print your new mailing address here:

Name _____

New Address _____

City _____

Zip _____

Cut out and return this form to:

North Carolina Medical Journal

P.O. Box 3910, Duke University Medical Center
Durham, NC 27710

YOCON[®]

YOHIMBINE HCl

Description: Yohimbine is a 3a-15a-208-17a-hydroxy Yohimbine-16a-carboxylic acid methyl ester. The alkaloid is found in Rubiaceae and related trees. Also in Rauwolfia Serpentina (L) Benth. Yohimbine is an indolalkylamine alkaloid with chemical similarity to reserpine. It is a crystalline powder, odorless. Each compressed tablet contains (1/12 gr.) 5.4 mg of Yohimbine Hydrochloride.

Action: Yohimbine blocks presynaptic alpha-2 adrenergic receptors. Its action on peripheral blood vessels resembles that of reserpine, though it is weaker and of short duration. Yohimbine's peripheral autonomic nervous system effect is to increase parasympathetic (cholinergic) and decrease sympathetic (adrenergic) activity. It is to be noted that in male sexual performance, erection is linked to cholinergic activity and to alpha-2 adrenergic blockade which may theoretically result in increased penile inflow, decreased penile outflow or both.

Yohimbine exerts a stimulating action on the mood and may increase anxiety. Such actions have not been adequately studied or related to dosage although they appear to require high doses of the drug. Yohimbine has a mild anti-diuretic action, probably via stimulation of hypothalamic centers and release of posterior pituitary hormone.

Reportedly, Yohimbine exerts no significant influence on cardiac stimulation and other effects mediated by B-adrenergic receptors, its effect on blood pressure, if any, would be to lower it, however no adequate studies are at hand to quantitate this effect in terms of Yohimbine dosage.

Indications: Yocon[®] is indicated as a sympatholytic and mydriatic. It may have activity as an aphrodisiac.

Contraindications: Renal diseases, and patient's sensitive to the drug. In view of the limited and inadequate information at hand, no precise tabulation can be offered of additional contraindications.

Warning: Generally, this drug is not proposed for use in females and certainly must not be used during pregnancy. Neither is this drug proposed for use in pediatric, geriatric or cardio-renal patients with gastric or duodenal ulcer history. Nor should it be used in conjunction with mood-modifying drugs such as antidepressants, or in psychiatric patients in general.

Adverse Reactions: Yohimbine readily penetrates the (CNS) and produces a complex pattern of responses in lower doses than required to produce peripheral a-adrenergic blockade. These include, anti-diuresis, a general picture of central excitation including elevation of blood pressure and heart rate, increased motor activity, irritability and tremor. Sweating, nausea and vomiting are common after parenteral administration of the drug.^{1,2} Also dizziness, headache, skin flushing reported when used orally.^{1,3}

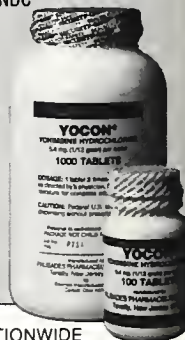
Dosage and Administration: Experimental dosage reported in treatment of erectile impotence.^{1,3,4} 1 tablet (5.4 mg) 3 times a day, to adult males taken orally. Occasional side effects reported with this dosage are nausea, dizziness or nervousness. In the event of side effects dosage to be reduced to 1/2 tablet 3 times a day, followed by gradual increases to 1 tablet 3 times a day. Reported therapy not more than 10 weeks.³

How Supplied: Oral tablets of Yocon[®] 1/12 gr. 5.4 mg in bottles of 100's NDC 53159-001-01 and 1000's NDC 53159-001-10.

References:

1. A. Morales et al., New England Journal of Medicine: 1221, November 12, 1981.
2. Goodman, Gilman — The Pharmacological basis of Therapeutics 6th ed., p. 176-188. McMillan December Rev. 1/85.
3. Weekly Urological Clinical letter, 27:2, July 4, 1983.
4. A. Morales et al., The Journal of Urology 128: 45-47, 1982.

Rev. 1/85



AVAILABLE AT PHARMACIES NATIONWIDE

**PALISADES
PHARMACEUTICALS, INC.**

64 North Summit Street
Tenafly, New Jersey 07670
(201) 569-8502
1-800-237-9083

New Members

Fouad Abdel-Jawad (PD), 271-H Dalewood Dr. Winston-Salem 27104
Lisa Haedrich Beck (PA), NCCIW, 3410 Bragg St. Raleigh 27610
James Gordon Bethune (PA), 4703 Penn Wyne Dr., Greensboro 27410
Marjorie Chorness (GYN), 3809 Computer Dr., Ste. 201, Raleigh 27609
James Michael Coumas DR, 1356 Weymouth Lane, Charlotte 28232
Elizabeth Fuller (PA), 315 Blueridge Road, Carrboro 27510
George Balis Gasperson (PA), 809 Green Valley Rd. Greensboro 27401
Johnnie Alice Hamby (PA), 1001 Blythe Blvd., Ste. 601, Charlotte 28203
William Stuart Hartley (R), 2508-12 Cranbrook Lane, Charlotte 28207
Edward Arthur Hedrick (PA), 5017 Harbour Towne Dr., Raleigh 27604
Mark Edward Helms (EM), 2 Lynwood Road, Asheville 28804
Martha Ann Hinds (PA), Bowman Gray School of Medicine, Medical Center Blvd., Winston-Salem 27157
John Dale Howard (R), 2711 Flintgrove Rd., Charlotte 28226
Frederick Samuel Jones (NEP), 3012 Falstaff Rd., PO Box 14006, Raleigh 27620
Jeffrey Alan Katz (PA), 13 Cherry Grove Dr., Hickory 28602
Mark Steven Katz (PA), Route #4, Box 213-A, Vale 28168
Michael John Kelley (R), 2500 Maynard Road, Charlotte 28270
Tracy Jean Martin (EM), 300 E. Park Ave. #5, Charlotte 28203
John Lyle Matthews (STUDENT), 11 Cobbleridge Court, Durham 27713
Alice Elizabeth Mauskopf (STUDENT), 2G Post Oak Road, Durham 27705
Lisa Eileen Moore (STUDENT), PO Box 61193, Durham 27715
Kenneth John Piva (FP), 2641 New Oxford Dr., Apex 27502
Titus Plomaritis, Jr. (ORS), 110 S. Park Terrace, Eden 27288
James Henry Pridgen (IM), 502N. Fourth St., Wilmington 28401
Ziaur Rahman (AN), Box 3094, DUMC, Dept. of Anesthesiology, Durham 27710

Gary Wayne Reash (PA), Raleigh Orthopaedic Clinic, 3515 Glenwood Ave., Raleigh 27612
Hellena Renee Scott-Okafor (RESIDENT), 1601 Owen Dr., Fayetteville 28304
William Carey Werthmuller (DR), 8000 Greencastle Dr., Charlotte 28210
George William Wilt (PA), PO Box 565, Buies Creek 27506
James Michael Zechman (IM), 2624 Mulberry Lane, Greenville 27858

Buncombe

Benjamin Bradley Fann (OBG), 137 Flint St., Asheville 28801
Vicky Marie Scott (OBG), 33 E. Avon Parkway, Asheville 28804
Craven-Pamlico-Jones
Mark Evan Franco (IM), 2313 Crestview Dr., New Bern 28562

Cumberland

Stephen Mabry Ginn (CD), 1314 Medical Dr., Ste. 102, Fayetteville 28304

Forsyth-Stokes-Davie

Rodger David Israel (IM), 3310 Brookview Hills Blvd., Winston-Salem 27103
Jean Marie Nelson (AN), Bowman Gray School of Medicine, Medical Center Blvd., Winston-Salem 27157

Gaston

Russell Ian Emerson (FP), 1851 Montclair Ave. Gastonia 28054

Greater Greensboro Society of Medicine

James Mitchell Granfortuna (IM), 301 E. Wendover Ave., Ste. 300, Greensboro 27401
Mark Conrad Ottelin (U), 200 E. Northwood St., Ste., 520, Greensboro 27401

Iredell

Nancy Anne Kiesow-Webb (P), Tri County Mental Health, PO Box 192, Highway 21 North, Statesville 28687

Mecklenburg

Stephanie Demetra Carperos (IM), 16513

Green Dolphin Lane, Huntersville 28078

Denise Emilie Duff (DR), 3100 Foxridge Road, Charlotte 28226
Russell H. Greenfield (EM), Carolinas Medical Center, PO Box 32861, Charlotte 28232
Neal Stephen Taub (PM), 2001 Vail Avenue, Charlotte 28207
Frederick H.D. Weidman, III (OPH), 100 Queens Rd., Charlotte 28204

Mitchell-Yancey

Dorothy Jeanne Durie Bobbe (FP), Celo Health Center, 200 Seven Mile Ridge Rd., Burnsville 28714

New Hanover-Pender

Thomas Lee Blackstone (PD), 5305-N Wrightsville Ave., Wilmington 28403
Sara Heath Collins (OBG), 1802 S. 17th Street, Wilmington 28401
Deborah Rosalie Ross (CHP), 1121 Medical Center Dr., Wilmington 28401
Warren Carlton White (PTH), 2131 S. 17th Street, Wilmington 28401

Pitt

Richard James Demasi (GS), ECU School of Medicine, Greenville 27858
Thomas Michael Sturgis (IM), ECU School of Medicine, Dept. of Medicine, Greenville 27858

Robeson

Thomas Edison Buie, Jr., (P), Southeastern Regional Mental Health Center, Lumberton 28358

Rockingham

Edward Lee Hawkins (IM), PO Box 2250, Reidsville 27320

Wake

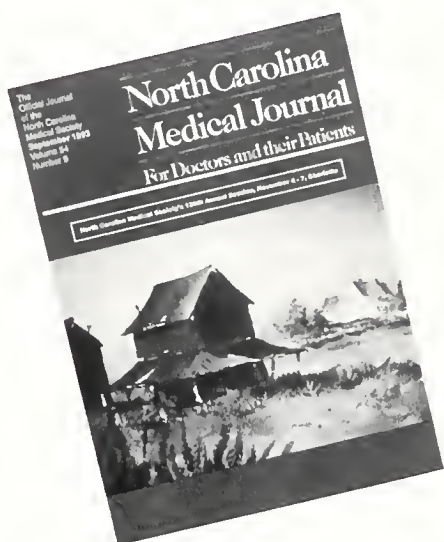
Joseph Davis Campbell (OBG), 3320 Wake Forest Road, Raleigh 27609
William Greene Way, Jr. (DR), 7505 Wing Foot Dr., Raleigh 27615

Watauga

Marshall Cary Murrey (FP), 209 Doctors Park, Boone 28607

The North Carolina Medical Journal

Recommended Reading for All Physicians and Health Care Professionals



Each month, the **Journal** presents a lively and diverse mix of medical and health care-related topics, from scientific to socioeconomic, plus a special pull-out section written for patients.

Physicians in all specialties as well as health care professionals in other fields read the **Journal** because it provides them with information pertinent to their community, their practices, and their professions.

Subscribe for yourself, or treat a friend or colleague to a 1-year gift subscription by simply filling out the coupon below.

Method of Payment:

☐ \$17 Check or money order enclosed, payable to the **North Carolina Medical Journal**. (NC residents add 6% sales tax)

☐ Charge to: VISA ____
M/C ____

Name on Card: _____

Account #: _____

Expiration Date: _____

☐ New ☐ Renewal

Send to: The North Carolina Medical Journal, Box 3910, Duke University Medical Center, Durham NC 27710.

Please start my 1-year subscription*:

My Name _____

Address _____

City/State/Zip _____

Please send a 1-year gift subscription to*:

Name _____

Address _____

City/State/Zip _____

*Please allow 4-6 weeks for delivery of the first issue.

Instructions for Authors

Manuscript Preparation

Authors should prepare papers according to the "Uniform Requirements for Manuscripts Submitted to Biomedical Journals" (N Eng J Med 1991;324:424-8) with these exceptions: 1) no abstract is needed; 2) no running title is needed; and 3) measurements must be reported in metric units; use of the International System of Units (SI) is optional.

Text (including Letters to the Editor) should be typed with one-inch margins and double-spaced. Title page should include address, and phone and fax numbers of the corresponding author. Submit two copies or a cover letter and a 3 1/2- or 5 1/4-inch computer disc with text written in MS DOS compatible format (WordPerfect, Microsoft Word, Displaywrite, or ASCII).

Submit illustrations, in duplicate, in the form of color 35mm slides or glossy photographs, or as black-and-white glossy photographs. Label them with author's name, note their position in the text, and indicate image orientation, if necessary. *Do not write on the backs of prints.* Type legends separately. Tables should be typed, double-spaced, one to a page. Tables must have titles and consecutive Arabic numbers.

Minimize references (no more than 15, preferably 10 or fewer). The "Uniform Requirements" cited above contain the format for references. Authors are responsible for the accuracy and pertinence of all citations. Avoid abbreviations entirely if possible, or keep them to a minimum. When used, completely define abbreviations at the first usage in the text.

Manuscript Editing

A medically qualified editor reads all manuscripts, and most are also reviewed by members of the North Carolina Medical Society. Manuscripts are received with the understanding that they are not under consideration for publication elsewhere. Decisions to publish or not are made by the editors, advised by peer reviewers.

We encourage a relatively informal writing style since we believe this improves communication. Imagine yourself talking with your unseen audience—as long as this doesn't lead you to scientific or linguistic inaccuracy. Be brief, clear, simple, and precise.

We edit accepted manuscripts for clarity, style, and conciseness. Except for letters, authors receive a copy of the edited manuscript for approval before publication.

Authors retain copyright to articles published in the *North Carolina Medical Journal*, but the North Carolina Medical Society copyrights the contents of each issue. Requests for permission to reprint all or part of an article must be submitted in writing to the address below and negotiated with the author and editor jointly. Reprinted material must carry a credit line identifying that it appeared in the *North Carolina Medical Journal*. Address manuscripts and correspondence to:

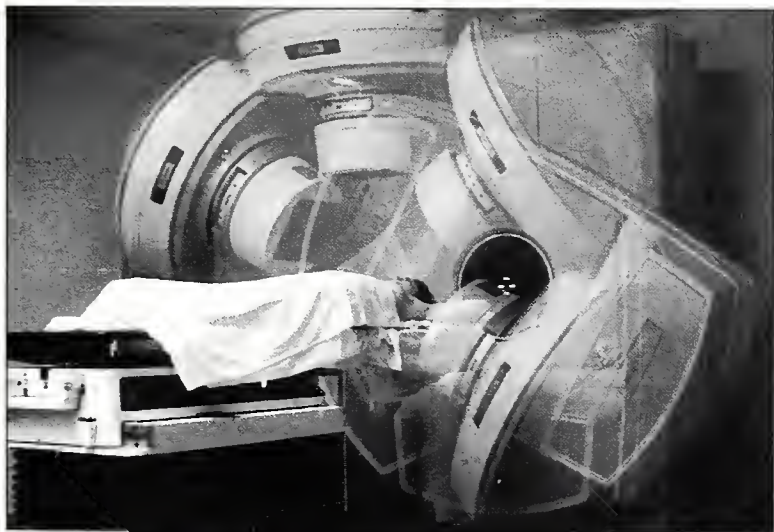
Editor, North Carolina Medical Journal

Box 3910, DUMC

Durham, NC 27710

Telephone 919/286-6410 Fax 919/286-9219

Breast-Conservation Treatment



AT LEAST ONE-THIRD OF ALL BREAST CANCER PATIENTS COULD HAVE LUMPECTOMY FOLLOWED BY RADIATION THERAPY

The American Cancer Society, the American College of Surgeons and the American College of Radiology have agreed that women whose early breast cancer was detected by mammography are candidates for breast-saving treatment. According to new standards, women with small lumps, those with tumors as large as two inches, and even some women with positive nodes may be candidates for this treatment.

Stage for stage, patients treated in this manner have the same longevity and the same freedom from local recurrence as those treated with mastectomy.

For copies of the standards please contact Keri Sperry, American College of Radiology, 1891 Preston White Drive, Reston, VA 22091.



Aphorisms of the Month

Daniel Sexton, M.D., Editor

Editor's Note: The following sayings are abstracted from "Big Ed's Calendar," published in Briefcase, a monthly newspaper sponsored by the Oklahoma County Bar Association (provided by John M. Perry, III, Attorney at Law, Oklahoma City).

The Puritans hated bear-baiting not because it gave pain to the bear, but because it gave pleasure to the spectators.

— Thomas Macauley

Listening to that symphony is like staring at a cow for 45 minutes.

— Aaron Copeland

If you don't risk anything, you risk even more.

— Erica Jong

You will do foolish things, but do them with enthusiasm.

— Collette

The most popular labor-saving device is still money.

— Phyllis George

It's easy to be independent when you've got money, but to be independent when you haven't got a thing - that's the test

— Mahalia Jackson

The only thing that makes life possible is not knowing what comes next.

— Ursula K. LeGuin

Index to Advertisers

Accuscribe	506
Alamance Internal Medicine	554
Auto Brokers, International	507
CompHealth	504
CompuSystems, Inc.	Back cover
Crompton Company	Inside front cover
Deweese Island, SC	500
Dupont	Insert after page 552
Glaxo Corp.	493, 536
Medical Mutual Insurance Co.	499
Medical Protective Co.	527
Mid-Atlantic Consulting Services	511
Moore Regional Hospital	531
Palisades Pharmaceuticals	556
Prospectus Computer Co.	542
St. Paul Fire and Marine Insurance Co.	491
U.S. Air Force	542
U.S. Air Force Reserve	507
U.S. Army	495
U.S. Army Reserve	522
ValuSystems	554
Winchester Surgical Supply	489
Womble Carlyle Sandridge & Rice	507

Introducing Kappa 100. Now the best quality comes at the best price.



• Air tight seal around lens is ideal for pneumatic testing

• Durable, shockproof polycarbonate construction.

• Permanently attached magnifier lens cannot fall off.

• Recessed fiber bundle is protected from damage, easy to clean.

• White bright halogen light

• Round shape fits orbital ridge at any angle for greater user comfort.

• 28 viewing lenses allow more versatility and accuracy.

• Permanent anti-reflex coating cuts glare, gives better view of retina.

• Large diameter viewing aperture.

• Viewing and light apertures sealed on both patient and examiner sides for permanent dust protection. Ensures long-term reliability and performance.

\$3999

See Your
Heine
Distributor

manufactured to strict Heine standards set over a period of four decades, Kappa 100 is the essence of quality. Halogen illumination, recessed fiber optics bundle for maximum protection, shockproof polycarbonate construction and dustproof apertures are just a few of the advanced features that give you more value than any competitive diagnostic set available today. To find out how good - and how reasonably priced - the new Kappa 100 Diagnostic Set really is, contact Heine today. You'll be pleasantly surprised, that's a guarantee.



HEINE

Quality worth looking into.



"The peace of mind I get from CompuSystems is the best testimonial I can give."

R. Bruce Jackson II, M.D., Boone, NC

Computer systems to fit your needs

"I first read an ad for CompuSystems on the back of this same journal. At the time, I had an older computer system that just wasn't meeting my needs. Then I learned that a change in the system to allow electronic filing would be quite expensive without really improving it.

"We invited a CompuSystems salesman by. His demonstration of the system in my office showed me that the enthusiastic references I'd heard weren't just hype. He took time to get to know our practice, and he helped us decide on a configuration that suits our needs. No pressure, just a responsive professional who answered all our questions."

Software that inspires confidence

"Now that we're using the system, I find I'm no longer worrying about the billing

and collections in my office. The age of my receivables has been dramatically reduced. I can design my own reports to extract almost any information from the system. Most of all, I'm confident that the business side of my practice is under control."

Gaining peace of mind

"The peace of mind I get from CompuSystems is the best testimonial I can give. It's an investment that allows me to focus on practicing medicine, instead of on the business of medicine.

"If you'd like to hear more, please feel free to call me or drop by."

- *More physicians in North and South Carolina choose CompuSystems' Medical Insurance Processing and Billing System than any other.*
- *Electronic filing directly to North Carolina Medicare, Medicaid, and BC/BS with no per-claim charges.*
- *Features to maximize return, improve cash flow, and increase productivity.*
- *"One-call" total system support, including on-site hardware service.*



CompuSystems
INC.

Call now for details: 800-800-6472

The
Official Journal
of the
North Carolina
Medical Society
November 1993
Volume 54
Number 11

North Carolina Medical Journal

For Doctors and their Patients



"Southern Railroad Depot" by Joseph F. Nicastro, M.D., of Winston-Salem

THERE IS
SOMETHING
IN OUR NAME
THAT BRINGS YOU
A FEELING OF
SECURITY.

CRUMPTON COMPANY

INSURANCE & ASSET MANAGEMENT

CRUMPTON COMPANY, INC.

PROFESSIONAL INSURANCE CONSULTANTS

CRUMPTON INVESTMENT COUNSEL, INC.

REGISTERED INVESTMENT ADVISOR

3001 Academy Center, P.O. Drawer 51939, Durham, N.C. 27717-1939, (800) 672-1674

NORTH CAROLINA MEDICAL JOURNAL

For Doctors and their Patients

Published Monthly as the Official Organ of the North Carolina Medical Society

November 1993, Volume 54, Number 11

(ISSN 0029-2559)

EDITOR

Francis A. Neelon, M.D.
Durham
919-286-6409

DEPUTY EDITOR

Edward C. Halperin, M.D.

CONSULTING EDITOR

Eugene A. Stead, Jr., M.D.

ASSOCIATE EDITORS

Eben Alexander, Jr., M.D.
Winston-Salem
William B. Blythe, M.D.
Chapel Hill
F. Maxton Mauney, Jr., M.D.
Asheville
Walter J. Pories, M.D.
Greenville

MANAGING EDITOR

Jeanne C. Yohn
Durham
919-286-6410
fax: 919-286-9219

EDITORIAL ASSISTANT

Jane Whalen

SECTION EDITORS

Eugene W. Linfors, M.D.
Daniel J. Sexton, M.D.

BUSINESS MANAGER

George E. Moore
Raleigh

EDITORIAL BOARD

Margaret N. Harker, M.D.,
Morehead City, CHAIR

MEMBERS

Jay Arena, M.D.
Durham
William B. Blythe, M.D.
Chapel Hill
Jack Hughes, M.D.
Durham
Timothy W. Lane, M.D.
Greensboro
Eugene S. Mayer, M.D.
Chapel Hill
Walter J. Pories, M.D.
Greenville
Robert W. Prichard, M.D.
Winston-Salem
Mary J. Raab, M.D.
Greenville

The Society is not to be considered as endorsing the views and opinions advanced by authors of papers delivered at the Annual Meeting or published in the official publication of the Society.—*Constitution and Bylaws of the North Carolina Medical Society*. Chap. IV, Section 3, pg. 4.

NORTH CAROLINA MEDICAL JOURNAL

Box 3910, Duke University Medical Center, Durham NC 27710, (919-286-6410/fax: 919-286-9219), is owned and published by The North Carolina Medical Society under the direction of its Editorial Board. Copyright © 1993 The North Carolina Medical Society. Address manuscripts and communications regarding editorial matters, subscription rates, etc., to the Managing Editor at the Durham address listed above. Listed in *Index Medicus*. All advertisements are accepted subject to the approval of the Editorial Board of the North Carolina Medical Journal. The appearance of an advertisement in this publication does not constitute any endorsement of the subject or claims of the advertisement.

Advertising representatives: United Media Associates, Karl Messerly, 2001 W. Main St., Suite 202, Stamford, CT 06902; 203-975-0606, and Don French, Box 2093, Cary, NC 27511; 919-467-8515.

Printing: The Ovid Bell Press, Inc., 1201-05 Bluff St., Fulton MO 65251.

Annual subscription (12 issues): \$17 (plus 6% tax in NC = \$18.02). Single copies: \$2. Second-class postage paid at Raleigh NC 27601, and at additional mailing offices. POSTMASTER: SEND ADDRESS CHANGES TO THE NORTH CAROLINA MEDICAL SOCIETY, 222 N. PERSON ST., RALEIGH NC 27601.

Free Report Reveals 10 Ways To Fight Back Against Bill Clinton's New Tax Increase!

Raleigh, NC — Jerry was really mad now. "I can't believe I'm getting nailed this bad. I seem to be supporting the national debt myself!" he thought to himself.

Once again, he had to write a big check with his tax return. Once again he had been told by his "tax advisor" that, "There is nothing you can do about it. You know that we're doing all that we can."

Somehow Jerry knew that his accountant had to be working for the IRS. "He must be. Why would he be so willing to roll over and play dead for the government?"

As Jerry finished subtracting the amount of the check to the IRS from his checkbook, he was staring at a pile of unread newspapers on the coffee table. There was a headline on yesterday's paper that said "Congress Admits That New Taxes From Clinton Tax Bill Will Go To New Spending And Not Deficit Reduction."

Jerry started to get hyper. He read the article and got even worse. The reporter explained

how the new Congress and Administration felt everyone had to chip in to pay for all the new spending that was needed.

The story went on to say that while new taxes were inevitable, there were still many loopholes and strategies to reduce taxes legally, and that most taxpayers never used even a small percentage of the secrets the IRS preferred people didn't know. "If people only knew how many ways there were to reduce their taxes, they wouldn't be complaining so loudly!" the article ended.

Jerry had enough. "I'm going to fight back legally! I'll never again be a patsy!" He knew that starting tomorrow he was going to stop complaining and take action.

As he picked up the telephone, he vowed that he was going to learn "The 10 Tax Saving Secrets The IRS Didn't want him to Know." A copy of this FREE REPORT is available by calling the 24 hour toll-free recorded message line listed below.

Call 1-800 723-4779, 24 Hrs, for FREE Recorded Message and Report

North Carolina Medical Journal

FOR DOCTORS AND THEIR PATIENTS

Contents / November 1993, Volume 54, Number 11

On the cover: "Southern Railroad Depot" (graphite, 1992), by Joseph F. Nicastro, M.D., of Winston-Salem. A retired orthopedic surgeon, Dr. Nicastro is an accomplished artist and member of the Southbound Model Railroad Club in Winston-Salem. His drawing depicts the old depot in Welcome, North Carolina, which served the original Southbound rail line. The story of how Welcome got its name appears on page 566.

SCREENING FOR DISEASE

- 568 Screening for Prostate Cancer: Does It Make a Difference? *Jeffrey G. Wong, M.D. and John R. Feussner, M.D.*

MEDICAL EDUCATION

- 573 Lessons from an Inconvenient Patient *Tim Weiner, M.D.*
- 575 State of Affairs: The U.S.-Iran Medical Exchange Program: Then and Now *Shiva Jarrahi, MSIII*

SOCIOECONOMICS OF MEDICINE

- 578 The Cost of Violence: The Economy of Health Care Delivery for Non-Accidental Trauma in an Urban Southeastern Community
Francis Robicsek, M.D., Beth Ribbeck, M.S., L.G. Walker, M.D., Michael H. Thomason, M.D., John I Hollenbeck, M.D., and John W. Baker, M.D.

MATERNAL HEALTH

- 584 Maternal Mortality in North Carolina *Margaret A. Harper, M.D., F.A.C.O.G.*

HEALTH WATCH

- 585 Cancer Awareness *North Carolina Medical Society*

MEDICAL ETHICS

- 590 Is There a Right to Health Care? *Rosemarie Tong, Ph.D.*
- 596 Thoughts on Reading "Is There a Right to Health Care?": A Response to Professor Tong's Article
J. Leonard Goldner, M.D.

SCIENTIFIC ARTICLE

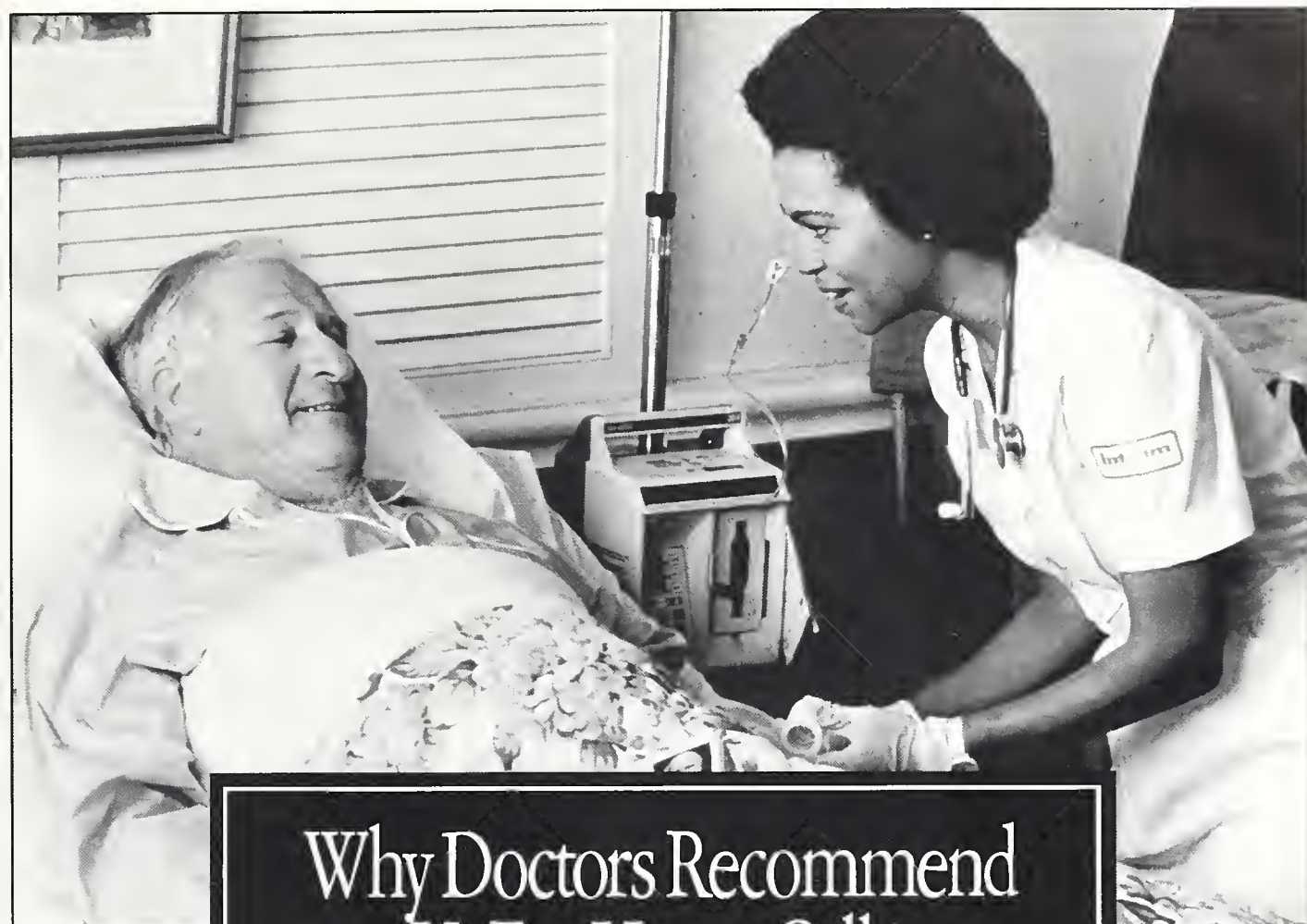
- 598 The Psoas Signs: Well-Described but Often Forgotten Physical Examination Findings of Iliopsoas Inflammation
Jeffrey G. Wong, M.D.

TOXIC ENCOUNTERS

- 602 When God Was Tired: Clozapine Overdose *Ronald B. Mack, M.D.*
- 605 Tardive Dyskinesia and Pseudo-Parkinsonism In a Nursing Home Patient Who Itched
William G. Ondo, M.D., and Barrie J. Hurwitz, M.D.

BULLETIN BOARD

- | | |
|---|----------------------------------|
| Letters to the Editor: | 589 Instructions to Authors |
| 564 Should Everyone Be Vaccinated Against Flu? | 608 Continuing Medical Education |
| Reply from Dr. Wong | 609 Classified Advertisements |
| 564-66 Doctors vs. Lawyers: Round Two | 610 New Members |
| 566 Pearl of the Month | 611 Subscription Form |
| 566 Welcome, NC: Winston-Salem Southbound Railway | 612 Aphorisms of the Month |
| | 612 Index to Advertisers |



Why Doctors Recommend Us For House Calls.

Temporary HeroesSM When a patient needs continued care after discharge, doctors count on INTERIM HEALTHCARESM services. As one of the nation's oldest and largest providers of qualified specialists, INTERIM HEALTHCARESM services represent a complete range of professional nursing and technical disciplines. From home care to long- and short-

term office staffing, we offer the total flexibility to satisfy every level of care. JCAHO accreditation and an extensive qualifications and screening process reflect our commitment to stringent standards. When your patients are counting on you, count on the INTERIM HEALTHCARESM team to make house calls.

Interim
HEALTHCARESM

Formerly Medical Personnel Pool®

JCAHO Accredited

Asheville 704-253-0301 • Ahoskie 919-332-7665 • Chapel Hill 919-929-4396 • Charlotte 704-372-8230 • Clinton 919-592-9011 • Dunn 919-892-5400 • Durham 919-493-7575
Elizabeth City 919-338-7665 • Elizabethtown 919-862-8790 • Fayetteville 800-849-6144 • Gastonia 704-861-1156 • Greensboro 919-294-2900 • Greenville 919-758-7665 • Hendersonville 704-693-1449
Hickory 704-324-2121 • High Point 919-887-1272 • Jacksonville/Morehead City 800-452-8241 • Kitty Hawk 919-261-7665 • Laurinburg 919-277-4272 • Lenoir 704-754-0211 • Lumberton 919-738-1628
Pinehurst 919-295-2211 • Raeford 919-875-5833 • Roanoke Rapids 919-537-1500 • Rocky Mount 919-985-1867 • Raleigh 919-872-7100 • Sanford 919-774-6026 • Southport 800-598-9168
Troy 919-576-3700 • Wallace 919-285-6063 • Whiteville 919-642-2106 • Wilmington 800-653-3171 • Wilson 919-243-7665 • Winston-Salem 919-768-6997

Letters to the Editor

Should Everybody Be Vaccinated Against Flu?

To the Editor:

The letter by Dr. Gutman and the response by Drs. Wong and Feussner (NC Med J 1993;54:433-4) on the possible benefits of mass immunization for influenza ignored the fact that there are complications from influenza vaccine.

Efficacy studies have been carried out on groups at high risk from influenza, but not on the general population. In considering whether it is cost efficient or not to subject the entire working population to influenza vaccination we must consider that a certain number of healthy people who are at low risk from influenza will experience iatrogenic disease, the costs of which will certainly diminish the overall benefit. For example, a few years ago I was called to perform a tracheotomy on a prominent judge of the Circuit Court of Massachusetts, who had developed Guillain-Barré syndrome after influenza vaccination. Twelve years later I was still changing the judge's tracheostomy tube; he was still paralyzed from C-4 down.

I know that one case does not prove cause and effect, and that the vaccine now used is different than what the judge received. However, it is difficult for me to forget this dramatic case whenever another plea for social engineering is made.

Dennis A. Greene, M.D.
Division of Otolaryngology-Head
and Neck Surgery
Kaiser Permanente
Raleigh, NC 27612

A Reply from Dr. Wong

To the Editor:

We appreciate Dr. Greene's interest in the issue of influenza vaccination. As mentioned in our previous

letter, we do *not* advocate mass immunization for the general population but strongly encourage vaccination in those populations considered to be at "high risk" (patients over 65 years of age, residents in chronic care facilities, patients with chronic debilitating illnesses, and health care workers caring for such patients).

Dr. Greene is certainly correct that any complications arising from vaccination itself should be properly included in the overall cost-benefit analysis of immunization policies. His example of the unfortunate patient in Massachusetts, however, adds little to this debate. The standards for proving causation have been well described in the literature¹ and the notion that the influenza vaccination *causes* the Guillain-Barré syndrome remains, to our knowledge, speculative at best. Just as the enthusiasm for "successful" therapies based entirely on anecdotal reports must be tempered, so one should be cautious about rejecting a policy option on the basis of a single case, no matter how dramatic it may be.

Jeffrey G. Wong, M.D.

Box 3375

Duke University Medical Center

Reference

1 Sackett DL, Haynes RB, Guyatt GH, Tugwell P. *Clinical Epidemiology: A Basic Science for Clinical Medicine*, 2nd edition. Boston, MA: Little, Brown and Company, 1991.

Doctors vs. Lawyers: Round Two

To the Editor:

It was a foregone conclusion that someone would point out the absurdities in Ms. Tracy Lischer's theories of

medical malpractice (NC Med J 1993;54:352-6). Dr. Bruce Councill wrote from a physician's view point defining many of the problems with which we are all too familiar. The chaos of the malpractice lottery wastes billions of dollars, especially in unnecessary "defensive" medical costs designed to keep the trial lawyers from uncovering an Achilles heel.

Ms. Lischer's response to Dr. Councill only serves to "widen the gap" between our two professions and to obscure any change from the present lottery system to a more helpful and less-costly solution. Anybody who thinks a person is guilty of malpractice just because some other physicians (I use the term in a spirit of generosity) label the care as substandard, is an idiot. Wave some money and these hired guns will slither out from beneath the rocks.

Dr. James Davis, a man I admire and respect, has said that one of the greatest problems of the present system is that it is often the good physicians who are taken to court. Ms. Lischer fails to understand this. Her mindset represents a clear and present danger to society in general and to good physicians in particular.

Marion W. Griffin, M.D.

218-D Foust St.

Asheboro, NC 27203

To the Editor:

Ms. Lischer makes the assumption that because I was sued four times over the last ten years that at least 12 of my peers must have thought my care was

Guidelines for Letters:

All letters are subject to editing and abridgment. Letters should not exceed 500 words; longer letters are welcome, however, and we will consider them for publication elsewhere in the *Journal*. Letters must be typed, double-spaced, signed, dated, and include the author's phone number and address. Send letters to: NCMJ, Box 3910, DUMC, Durham, NC 27710; or fax them to: 919-286-9219.

substandard. In fact, three of the four cases were dropped four to five years after filing and before I was deposed. I have yet to be deposed in the fourth case, which was filed four years ago on the day before the three year statute of limitations expired. However, the former chairman of my residency program and past president of the American Board of Obstetrics and Gynecology has given expert testimony in my defense. Contrary to Ms. Lischer's surprising assumption, my peers have and will exonerate me.

Perhaps plaintiff attorneys would say: "So what? What harm has been done?" Well, I found it unsettling to have a sheriff walk through my patient waiting room to hand-deliver a summons to me as if I were a common criminal. As a well trained, conscientious clinician, I have found the verbiage utilized by the plaintiff's attorney in the allegations to be offensive: "reckless, careless, wantonness, purposeful, negligence, willful, abandonment, etc." As a normal human being, I have been tempted at times to question my own integrity and ability as month after month the letters from the defense attorney come across my desk -- unwelcome reminders of a legal system that assumes guilt rather than innocence in cases with a less than perfect outcome.

Ms. Lischer further contends that expert witnesses for the plaintiffs "will not do this for money." According to Lucy Layton of Medical Mutual Insurance Company, they do it for a lot of money. In North Carolina, expert witnesses for the plaintiff often charge a large retainer fee (occasionally up to \$5,000), they charge \$200 to \$400 per hour for chart review and \$1,000 to \$1,500 per day at the courtroom. Ms. Lischer further contends that these expert witnesses say "they can earn more and earn it easier seeing patients." In fact, these "professional expert witnesses" often come from out of state, are not in active clinical practice, and by their own testimony have confessed to making up to \$400,000 per year. In stunning contrast, according to Ms. Layton, it is the expert witnesses for the defense who are North Carolinians,

who are in active clinical practice, and who could be making more money seeing patients because they often provide their time and testimony gratis.

Apparently, I am not alone. About 80% of my peers in OB/GYN have been sued at least once. Most of these suits are non-meritorious and, as in my case, rarely are expert opinions obtained by the plaintiffs attorneys before filing suit. According to Ms. Layton, the cost to malpractice insurance carriers of non-meritorious cases discontinued in the pretrial stages ranges from \$10,000 to \$50,000. The high cost borne by the defense for those cases that do go to trial seems unjustified in light of the fact that 85% to 90% of the time the verdict is found in favor of the defense.

It is painfully obvious to me and to others who have been dragged through this antiquated and inequitable legal system that significant tort reform is absolutely necessary. I suggest we consider the following:

1. Require approval by a regional mediation committee before filing of lawsuits.
2. Have all legal expenses assigned to plaintiffs or plaintiffs attorneys if they discontinue or fail to successfully litigate a malpractice suit that was not approved by the mediation committee.
3. Limit awards for pain and suffering to \$250,000.
4. Eliminate contingency fees.

All of these would certainly go a long way to temper the enthusiasm of plaintiff's attorneys for filing non-meritorious law suits, but they would not in any way deny legal access to those few patients who have truly suffered from malpractice.

R. Bruce Councell, M.D.
Sanbridge & Councell OB-GYN
Associates
Asheville, NC 28801

To the Editor:

I want to offer congratulations to Dr. Bruce Councell on a well thought out and superbly composed letter to the editor of the *North Carolina Medical Journal*. If more physicians took the time and effort to speak out the way he did, the problems of the medical profession would be lessened.

Ms. Lischer's response was unbelievable, pitiful and idiotic.

David T. Milton, M.D.
Western Carolina Radiology
Associates
Asheville, NC 28801

To the Editor:

I found Ms. Lischer's response to Dr. Councell's reply indeed enlightening because it demonstrates the essence of the *modus operandi* of the malpractice lawyer. Without a shred of knowledge concerning the four cases in which Dr. Councell was embroiled, she nevertheless argues that Dr. Councell is culpable.

For lawyers, the facts of a malpractice case are irrelevant. Their objective is to create doubt in the minds of the jury as to whether the defendant was diligent enough in his care. Once doubt is established, the injured party or his bereaved estate are paraded forth as deserving of compensation for what everyone agrees is a tragic result. Whether or not the defendant is actually guilty of malpractice has very little to do with how the lawyers proceed once the wheels are in motion. And if a judge becomes involved, you are only faced with another lawyer.

I would like to consider the use of the "expert witness" to which Ms. Lischer refers. In my experience there are three types of "expert witnesses" who give depositions: 1) The professional "expert witness" who can earn hundreds of thousands of dollars a year by appearing in malpractice cases. They are paid for their testimony by the plaintiff. 2) The expert who has been directly involved in the injured patient's care, and has a direct interest in testifying in order to shield him or herself from litigation or to argue for an alternative treatment that he or she had recommended. These experts do not address whether the treatment actually given by the defendant was appropriate to the standard of care or was a reasonable alternative. 3) An expert physician or nurse who has virtually no relevant clinical background (or none in recent memory) but is being paid by the hour to work on behalf of the litigant.

None of the cases with which I

have been involved ever went to trial. I suspect that most cases of genuine malpractice are settled before they ever get to depositions. I do not believe malpractice is that hard to recognize. However, if there are big bucks on the table and the proper "experts" can be brought on line, the lawyers will proceed. In one case settled out of court, a large sum was awarded to the estate of a young diabetic patient because the defense lawyers doubted that they could convince a jury that there had been no malpractice. The eleventh hour capitulation came despite written opinions in favor of the defendant from several prominent physicians, from local caregivers who had reviewed the case and were prepared to give depositions, and from two department chairmen at respected universities. The doubt was created by the depositions of five "expert witnesses" all of whom fell into my previously listed categories. Perhaps the sheer number of "experts" dissuaded the lawyers from a more vigorous defense. Both law firms spent money obtaining experts and preparing their cases, but the plaintiff's firm would not be paid without a settlement (both are paid if there is a settlement).

Ms. Lischer's reply is a fine example of how lawyers argue to make facts superfluous. Her reply, there is no doubt this time, displays the goals and methods of the malpractice attorney.

William S. Blakemore, M.D.
Ophthalmology
101 Mark Drive
Edenton, NC 27932

To the Editor:

R. Bruce Councell's letter in your September issue succinctly sums up the deleterious effects trial lawyers have on medical care in this country. His view recounts the anecdotal experience of one practitioner but with a pansocietal perspective. I found his summary quite accurate, both in its factual components and in the way it conveys a sense of infinite frustration over this malignant and disruptive force which colors the way all of us practice medicine.

In her "rebuttal," Ms. Lischer resorts to truculent calumny. She repeats the oft-uttered (and universally recognized) duplicity that expert witnesses are, in all instances, persons of high integrity with no mercenary concerns. She thereby reaches the grossly un-

founded conclusion that Dr. Councell must be a sub-par practitioner. In two short paragraphs Ms. Lischer demonstrates that she is incapable of perceiving these issues in any objective fashion, that under the sheep's clothing of mediation lies the wolf going for the jugular of medicine, and that in the face of a compelling argument she must resort to personal attack to defend her position. I feel that Mr. Lischer has abused the hospitality of an open forum in *North Carolina Medical Journal* and should be refused any further opportunity to express her views in this forum. Should any of us in medicine consider conciliation with the American trial lawyers and those of their ilk? I agree with Dr. Councell: physicians must side with their patients, not only to continue the delivery of quality care medicine, but to fight for tort reform as an unqualified positive step forward for medical care in this country.

Karol R. Wolicki, M.D.
Greensboro Ear, Nose & Throat
Associates
321 W. Wendover Avenue
Greensboro, NC 27408

Pearl of the Month

Become a pediatric artist in 60 seconds: Practice drawing a big circle and a small circle on top of it. Put two BIG ears on top, and you have just become a pediatric artist. A couple of eyes and a nose and a mouth finish your rabbit.

Now, if your pediatric patient wants the rabbit coming this way, put three buttons on his vest. If he wants him going yonder way, put a tail on the rabbit.

With a felt tip pen this rabbit fits well on a wrist. If you want to go 3-D, put one ear going up the back of the index finger and one up the middle finger. Now the patient can make the rabbit wiggle his ears.

When the kid comes up to you at church with his hand stuck out and says, "Doc, draw me a rabbit," you've got it made. All the kids around want a rabbit.

Don't forget to admonish then strongly, "Don't wash it off!"

—submitted by Bruce B. Blackmon, M.D.
Buis Creek, NC 27506

Welcome, NC: Winston-Salem Southbound Railway

"We got a railroad!" There was a time when those words meant a community would survive. Growth was assured. Crops would find a way to larger city markets and strangers could find a way to your community. So it was in 1909 with the building of the Winston-Salem Southbound Railway. The line began in the growing towns of Winston-Salem, and went to Wadesboro, North Carolina. It provided a needed connection with industries in the north and the world with a seaport connection in Charleston, South Carolina.

So important was having a railroad and a depot that local citizens along the route would donate land to the railroad in exchange for getting their own depot. The depot would put the name of the community on the map across the entire growing nation. When a train to a small Davidson County community arrived, everyone came out to welcome Col. H.E. Fries, President of the Winston-Salem Southbound, and told him they wanted to name their community Fries, after him. He said he did not want the community named after him. Mr. Harold Zimmerman said that all the community wanted was for anyone who came there to feel welcome. After much discussion, Fries and Zimmerman convinced the community to call themselves WELCOME.

Times have changed and the little depot is gone. Joe Nicastro, a Winston-Salem orthopedic surgeon and artist, has captured the spirit of the depot in its last days from an old photograph, for all of us to remember and enjoy.

—Southbound Model Railroad Club
Winston-Salem, NC

Put the power of a professional money manager behind your income.

You work hard for every dollar you earn. Why not have an experienced money manager make your money work hard, too?

Dean Witter's Investment Consulting Services Department offers you the services of a wide selection of professional, independent money managers, previously available only to large institutional investors. Call today and let us help you keep more of your hard-earned dollars and increase your earnings.

Lawrence M. Browning

(910) 727-8900

WATS 800-786-7860



DEAN WITTER

380 KNOLLWOOD ST., SUITE 500
WINSTON-SALEM, NC 27103

© 1992 Dean Witter Reynolds Inc. Member SIPC.

Screening for Prostate Cancer

Does It Make a Difference?

Jeffrey G. Wong, M.D., and John R. Feussner, M.D.

Susan's father, Sidney Smith, is 63 years old. Recently he has heard on radio and television talk shows that a new test, the Prostate Specific Antigen (PSA), is now available to check for prostate cancer. During his general check-up visit to your office, he mentions this test and wants to know more. He is in excellent health and his urinary review of systems reveals only a slight decrease in the intensity of his urinary stream. On examination he has moderate prostate enlargement but no palpable nodules. His stool test is Hemoccult negative. The remainder of his examination is normal. Should you order a PSA determination?

In the first article in this series (NC Med J 1993;54:218-21) we provided six guidelines for deciding whether and how to screen asymptomatic patients for disease. Using those six guidelines, we will formulate a recommendation for Mr. Smith, reviewing each guideline individually in order to arrive at a reasonable therapeutic plan.

Target Disease Considerations

1. Is the disease common or serious enough to warrant screening?

Yes. Prostate cancer is the most common cancer in men and the third leading cause of cancer death in the United States male population. Prostate cancer is a disease of older men. As the number of men older than 50 years of age increases, so will the incidence of prostate cancer. In 1993, 165,000 new cases of prostate cancer will be diagnosed, and 65,000 men will die of this disease.¹ By the year 2000, these numbers are estimated at 314,000 and 90,000, respectively.²

2. Is there a pre-symptomatic phase in the natural history of the disease during which time a test can detect it?

Possibly yes. Prostate cancer is classified into stages A (non-palpable tumor limited to the prostate), B (palpable tumor limited to the prostate), C (locally invasive tumor with or without adjacent lymph node involvement) or D (metastatic tumor). Epidemiological studies of its natural history support the premise that prostate cancer develops locally within the substance of the prostate gland. This localized cancer may be asymptomatic or may produce symptoms of hesitancy, frequency, urgency and retention. A major difficulty in diagnosis is that these symptoms cannot distinguish prostate cancer from benign prostatism. Transurethral resection of the prostate (TURP) performed because of these symptoms often reveals previously undetected, localized cancer in the surgically removed prostate tissue chips. The palpation of asymptomatic prostatic nodules during digital rectal examination can lead to the discovery of prostate cancer (stage B tumors).

Patients who have localized disease have good survival rates: the 10-year disease-free survival rate in patients with stage A prostate cancer is

around 87%; stage B disease, 61%; and stage C disease, 35%.^{4,5} The median survival of patients with stage D cancer is 10-30 months depending upon the degree and extent of metastatic spread.⁵

3. Are there effective treatments for the disease available to use after early detection?

Who knows? Cancer limited to the prostate gland can be treated by surgical resection, localized radiation therapy, or both. The survival rates are excellent with all. Successful treatment of more advanced disease with hormonal and chemotherapy has also been reported,⁶ although problems with *lead-time* and *length time* biases may affect the validity of these claims (see NC Med J 1993;54:438-40 for a further description of these terms).

Recent data suggest that *non-treated*, localized prostate cancer has a survival rate equivalent to that of treated localized disease. Johansson et al.⁴ followed 223 patients with early stage prostate cancer who did not undergo prostatectomy. The patients were given hormonal therapy only if they later became symptomatic. Remarkably, only 19 of their patients subsequently died of prostate cancer; 105 patients died of other causes. The 10-year sur-

Division of General Internal Medicine
PO Box 3375 Duke University Medical
Center, Durham 27710.

vival rate for their non-treated, localized prostate cancer patients was 87%. A sub-group of their patients did choose radical prostatectomy as treatment for their limited stage prostate cancer, and their 10-year survival rate was essentially the same as that of the non-treated patients.

Only about 1 in 380 men with histological evidence of prostate cancer actually dies of the disease.⁷ This suggests that mortality due to intercurrent disease is more significant than that due to prostate cancer. Autopsy data indicate that by age 80, cancer can be detected in 60-70% of prostates.⁸ A 50-year-old man has roughly a 40% chance of developing prostate cancer during his lifetime, but only a 2-3% chance of dying from it.²

Screening Test Considerations

1. Are there screening tests with acceptable sensitivity and specificity available to detect the target disease? *Probably not.* The principal screening tests used to detect prostate cancer are the digital rectal examination, the transrectal ultrasound study, and the prostate-specific antigen (PSA) blood test. The serum acid phosphatase test had been used in the past.

The digital examination has limited sensitivity for at least two reasons: 1) only the posterior and lateral aspects of the prostate can be palpated, but cancer often occurs in other portions of the gland⁹; 2) stage A prostate cancer, the clinical stage targeted by screening efforts is, *by definition*, not palpable. Guinan et al.¹⁰ reported the digital rectal exam to have a sensitivity of 69% and specificity of 89% for all stages of prostate cancer in a highly selected group of individuals with urinary obstructive symptoms, but in another study only 26%-34% of men with suspicious findings on digital examination actually had microscopic evidence of cancer on needle biopsy.¹¹ Recent studies in asymptomatic men have suggested the sensitivity to be about 33%¹² and possibly as low as 2%-9%.¹³ The specificity of digital examination is essen-

tially unknown because biopsies are rarely performed in asymptomatic patients with normal prostate examinations.

The value of transrectal ultrasonography in asymptomatic men is unknown; most available data come from highly selected populations of patients with either suspected or confirmed prostate cancer. In these studies, sensitivity was 68% and specificity 43%.¹⁴ One recent prospective trial screened 800 volunteers with transrectal ultrasonography and digital rectal examination; biopsies were performed only if either test was positive so sensitivity and specificity cannot be calculated. The positive predictive value of transrectal ultrasound was 31%.¹⁵ One difficulty noted was the similar ultrasonographic appearance of prostate cancer and other benign inflammatory conditions.

Recent attention has focused on the PSA blood test as a screening tool. The prostate specific antigen is, as the name implies, highly specific for the prostate, but elevated blood levels are *not* specific for prostate cancer. The normal range for serum PSA is 0-4 ng/ml, and several prostate disorders (prostatitis, hyperplasia, cancer) may raise the blood concentration of this antigen. The range of serum PSA found in "benign prostatic hypertrophy" (BPH) is usually given as 4.1-10 ng/ml. Up to 50% of men with BPH and up to 45% of men with localized prostatic cancer have serum PSA values less than 10 ng/ml.¹⁶

The problem with using the serum PSA as a screening test lies in defining what concentration should be considered abnormal. If we choose 4 ng/ml as the upper limit of normal, a tremendous number of false positive tests will result. Should all of these men undergo prostate biopsy to determine whether

Table 1A. Screening Test Characteristics of PSA with Elevated Value Defined as > 4.0 ng/ml*

	Prostate Cancer	No Prostate Cancer	
Serum PSA > 4.0 ng/ml (Test Positive)	37	100	137
Serum PSA ≤ 4.0 ng/ml (Test Negative)	15	1501	1516
	52	1601	1653

Sensitivity = $37/52 = 71\%$

Specificity = $1501/1601 = 94\%$

Predictive Value of Positive Test = $37/137 = 27\%$

Table 1B. Screening Test Characteristics of PSA with Elevated Value Defined as > 10.0 ng/ml*

	Prostate Cancer	No Prostate Cancer	
Serum PSA > 10.0 ng/ml (Test Positive)	18	12	30
Serum PSA ≤ 10.0 ng/ml (Test Negative)	34	1589	1623
	52	1601	1653

Sensitivity = $18/52 = 35\%$

Specificity = $1589/1601 = 99\%$

Predictive Value of Positive Test = $18/30 = 60\%$

* Data of Catalona, et al.¹⁶

they have cancer or not? Using the information reported by Catalona et al.,¹⁶ we can demonstrate the predictive value of various PSA levels. Table 1A demonstrates the test characteristics when a PSA value above 4 ng/ml is defined as abnormal. In order to calculate sensitivity, we assume that a small fraction of patients (<1%) who have normal PSA values will have prostate cancer (remember, *no test is perfect!*). Catalona et al. studied a total of 1,653 patients; 137 had PSA values greater than 4 ng/ml and 37 of them had prostate cancer by biopsy. Although the test had a sensitivity of 71% and a specificity of 94%, because the prevalence of prostate cancer was low, the positive

predictive value was a mere 27%. Using 4 ng/ml as the threshold, an "abnormal" test leads to prostate biopsy in three normal patients for every one with prostate cancer!

On the other hand, if we define levels over 10 ng/ml as abnormal, we run the risk of missing men with localized prostatic cancer, the very type we most wish to find. Table 1B again uses the data of Catalona et al.,¹⁶ but changes only the threshold for defining "abnormal" from 4 ng/ml to 10 ng/ml. Using this criterion, 30 patients had "positive" tests and 18 of them had prostate cancer. The positive predictive value improves to 60% (Table 1B), meaning that three out of every five patients with a positive test will have prostate cancer. Defining a positive test as a PSA level above 10 ng/ml alters the operating characteristics of the test. The sensitivity falls to 35% while the specificity improves to 99%. The PSA now misses two-thirds of the patients with prostate cancer (34 of 52 patients with

proven prostate cancer had PSA values less than 10 ng/ml).

Preliminary data suggest that PSA, in conjunction with digital rectal examination, may improve the sensitivity and specificity of both tests¹⁶ although the actual value of combining these tests remains to be demonstrated. For patients with prostate cancer, serum PSA levels are proportional to the clinical stage of disease and the volume of prostate cancer.¹⁷ Obtaining serial PSA values after prostatectomy can be helpful in detecting recurrence. But the value of the PSA as a screening test falls short of our basic criteria.

2. Can an appropriate population of high risk patients be identified to undergo screening?

Probably not. Clinically, after age 50, the incidence of cancer increases markedly and continues throughout the lifetime of the male patient. A family history of prostate cancer in first-degree male relatives may confer a mod-

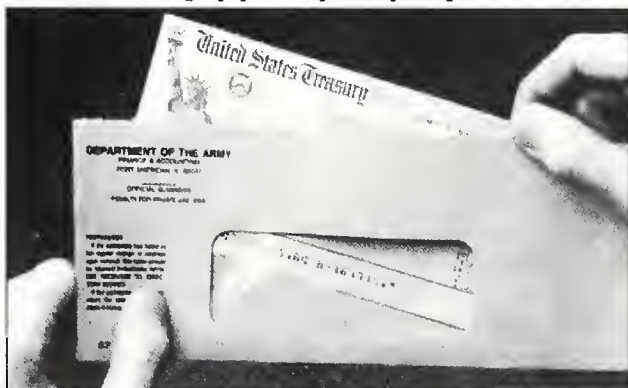
est increase in risk.¹⁸ Racial differences in incidence have been noted (for example, the incidence of prostate cancer in African American men is 120 times greater than in Asian American men¹⁹). However, the apparent racial difference is complicated and may not be as important as environmental, dietary and socioeconomic factors because the incidence rates in both African-American and Asian-American men are much higher than in native Africans or Asians.²⁰ A recent review of many suspected risk factors concluded that dietary fat intake may play a major role in the incidence of prostate cancer²¹.

3. Do the benefits of screening justify the costs of the screening strategy?

Probably not. Since there are no screening tests with acceptable sensitivity and specificity, any analysis of the benefits of screening is difficult. The choices involve trade-offs between false-positive or false-negative errors. If we accept the false-positive sce-

SURGEONS: COULD YOU USE AN EXTRA \$9,000?

If you're a resident in surgery, the Army Reserve will pay you a yearly stipend which



could total in excess of \$9,000 in the Army Reserve's Specialized Training Assistance Program (STRAP).

You will have opportunities to continue your education and attend conferences, and we will be flexible about scheduling the time you serve. Your immediate commitment could be as little as two weeks a year, with a small added obligation later on.

Get a maximum amount of money for a minimum amount of service. Find out more by contacting an Army Reserve Medical Counselor. Call:

Collect 919-493-1364

ARMY RESERVE MEDICINE. BE ALL YOU CAN BE.®

nario, most patients with a positive test will undergo biopsy but not have prostate cancer. With the false-negative scenario, we would avoid promiscuous biopsies but miss a large proportion of patients who have prostate cancer, thus giving patients the false security that they are disease-free (see Table 1B).

Further complicating the analysis are data demonstrating that patients treated for limited stage prostate cancer do not live longer than those left untreated.⁴ In fact, a recent study assessing outcomes of radical prostatectomy in patients over 65 years of age cautions that we may be doing more harm than good.²² The authors reported that we now do 5.75 times as many radical prostatectomy procedures as we did a decade ago before the widespread use of the PSA test. Furthermore, following radical prostatectomy, 2% of the patients died and nearly 8% suffered major cardiopulmonary complications within 30 days.

Recommendations

Recent recommendations by the American Cancer Society state that asymptomatic men over the age of 40 should be screened by digital rectal examination every year, and men older than 50 years should have both a PSA test and a digital rectal examination.²³ However, the Food and Drug Administration has not approved the PSA as a screening test for prostate cancer despite the support of many consultants. There is no consensus, nationally or internationally, for routine screening, and the International Union against Cancer and the United States Preventive Services Task Force have not endorsed routine screening for prostate cancer.^{6,24}

Despite the recommendations of the American Cancer Society, present evaluations of digital rectal examination, transrectal ultrasound, and serum PSA determinations do not support their

use in screening asymptomatic men for prostate cancer. We would recommend that Mr. Smith not have a PSA test performed. □

Next in our series on screening strategies for disease, we will discuss the following:

Mr. Smith has discussed with you the various options for prostate cancer screening and, with your suggestion, decided not to get the PSA test. During your counseling for health maintenance screening, the question of colorectal cancer comes up. He has no relatives with colorectal cancer. He has had no change in his bowel habits and no hematochezia or melena. He did have a negative stool Hemoccult test during your examination. At the age of 63, he has never been "scoped."

What strategy, if any, would you recommend for him at this time?

References

1. Boring CC, Squires TS, Tong T. Cancer statistics: 1993. *CA* 1993;43:7-26.
2. Carter HB, Coffey DS. The prostate: an increasing medical problem. *Prostate*. 1990;16:39-48.
3. Johansson JE, Adami HO, Andersson SO, et al. Natural history of localized prostate cancer. A population-based study in 223 untreated patients. *Lancet* 1989;1:799-803.
4. Johansson JE, Adami HO, Andersson SO, et al. High 10-year survival rate in patients with early, untreated prostate cancer. *JAMA* 1992;267:2191-6.
5. Resnick MI, Bagshaw MA, Door FA, et al. Response/ progression criteria for evaluating prostate cancer. In: Coffey DS, Resnick MI, Door FA, Karr JP, eds. *A Multidisciplinary Analysis of Controversies in the Management of Prostate Cancer*. New York: Plenum Press; 1988:299-308.
6. US Preventive Services Task Force. Screening for prostate cancer. In Fisher M, ed. *Guide to Clinical Preventive Services*. Baltimore, MD: Williams and Wilkins; 1989:63-6.
7. Chodak GW, Keller P, Schoenberg H. Routine screening for prostate cancer using digital rectal examination. *Prog Clin Biol Res* 1998;269:87-98.
8. Wynder EL, Mabuchi K, Whitmore W. Epidemiology of cancer of the prostate. *Cancer* 1971;28:344-60.
9. Spigelman SS, McNeal JE, Freiha FS, et al. Rectal examination in volume determination of carcinoma of the prostate: clinical and anatomical correlations. *J Urol* 1986;136:1228-30.
10. Guinan P, Bush I, Ray V, et al. The accuracy of the rectal examination in the diagnosis of prostate carcinoma. *N Engl J Med* 1980;303:499-503.
11. Chodak GW, Keller P, Schoenberg H. Routine screening for prostate cancer using the digital rectal examination. *Prog Clin Biol Res* 1988;269:87-98.
12. Vihko P, Kontturi O, Ervasti J, et al. Screening for carcinoma of the prostate; rectal examination and enzymatic radioimmunologic measurements of serum acid phosphatase compared. *Cancer* 1985;56:173-7.
13. Stamey TA. *Cancer of the prostate*. Monographs Urol 1983;4:65-132.
14. Chodak GW, Wald V, Parmer E, et al. Comparison of digital examination and transrectal ultrasonography for the diagnosis of prostatic cancer. *J Urology* 1986;135:951-4.
15. Lee F, Litttrup PJ, Torp-Pedersen ST, et al. Prostate cancer: comparison of transrectal US and digital rectal examination for screening. *Radiology* 1988;168:389-94.
16. Catalona WJ, Smith DS, Ratliff TL, et al. Measurement of prostate-specific antigen in serum as a screening test for prostate cancer. *N Engl J Med* 1991;324:1156-61.
17. Garnick MB. Prostate Cancer: Screening, diagnosis and management. *Ann Intern Med* 1993;118:804-18.
18. Cannon L, Bishop DT, Skolnick M, et al. Genetic epidemiology of prostate cancer in the Utah Mormon genealogy. *Cancer Surv*. 1982;1:47-69.
19. Boring CC, Squires TS, Heath CW Jr. Cancer statistics of African Americans. *CA* 1992;42:7-18.
20. Meikle AW, Smith JA. Epidemiology of prostate cancer. *Urol Clin North Am*. 1990;17:709-18.
21. Pienta KJ, Esper PS. Risk factors of prostate cancer. *Ann Intern Med* 1993;118:793-803.
22. Lu-Yao GL, McLerran D, Wasson J, Wennberg JE and the Prostate Patient Outcomes Research Team. An Assessment of Radical Prostatectomy: time trends, geographic variation, and outcomes. *JAMA* 1993;269:2633-6.
23. Mettlin C, Jones G, Averett H, et al. Defining and updating the American Cancer Society guidelines for cancer-related checkup: prostate and endometrial cancers. *CA* 1993;43:42-6.
24. Fair WR. Classic challenges and contemporary opportunities. Proceedings of a Symposium held 12 May 1992 in Washington in Conjunction with the American Urological Association's 87th annual meeting. *AUA Today*. 1992;5:16-19.

Our Roots Run Deep.



North Carolina physicians created Medical Mutual to protect the State's health care providers. For 17 years, we've kept the professional liability market open and stable – and we've built a strong company to weather the inevitable storms ahead.

Medical Mutual. We'll be there when you need us.



Medical Mutual Insurance Company of North Carolina

919.872.7117 800.662.7917

Offices in Raleigh, Greenville and Charlotte.

Lessons from an Inconvenient Patient

Tim Weiner, M.D.

In order to advance my academic fortunes as a third-year medical student and to secure good evaluations from my preceptors, I began to use parts of my personality that would be considered character flaws in most other endeavors. The third year became a game of finesse, benignly called "wardsmanship," that rewarded one's ability to fade into the crowd and avoid controversy. Success came from being formulaic and unimaginatively efficient. Advancement to the ranks of "good guy" came by answering trivial questions in mindlessly competitive situations, by cutting corners in the emotional needs of patients to insure that scut was accomplished and by generally celebrating the hierarchy at any opportunity.

The third year of medical school—that critical time when eager students want role models and when philosophies of medical care ought to be tested—was not a time for scientific inquiry or for ideals of service or for realization of potential or compassion. In the end, it came to be a time when the rituals of an established order are, for better or worse, learned and rehearsed and when those who are smoothest and most political carry the day.

From UNC Hospitals, University of North Carolina at Chapel Hill School of Medicine, Chapel Hill 27599.

"My lack of interest and caring wasn't anything personal, but I intended to pursue it with a vengeance on anyone who stood between me and my fourth-year electives."

The Patient

When Mrs. Miller met me late that spring I had achieved a high polish to my mediocre values. My lack of interest and caring wasn't anything personal, but I intended to pursue it with a vengeance on anyone who stood between me and my fourth-year electives. It is perhaps to Mrs. Miller's credit that she never liked me.

She was the type of admission that immediately excites one: a tiny, beak-nosed little old lady in her eighties. Frail, utterly helpless but still aristocratic, she unnerved and annoyed me because her pride was intact. She proved to be a human being who could whine and belittle and exploit my insecurities with an efficiency honed by decades of experience. Over our time together she

would become a tease to my perceived sense of humanity, and the more she revealed my shallowness, the more I came to despise her.

With me on the front lines of her health care was my cool, sardonic intern Frank. Without being able to see any reward for our time and efforts with the shrill Mrs. Miller, we quickly lost interest in her. Our morning visits became lame and perfunctory; without guilt we began to enjoy getting to the cafeteria ten minutes early.

By the end of the week, she knew that we didn't like her. I became convinced that she sought to retaliate by taxing my unrewarded and withered sense of compassion beyond its narrow limits. Because I was such a "good guy," such a "people person" (I had told my medical school interviewers), I resented her challenge. As a defense I would do more than simply not care; I would assume a pose of mocking compassion. It was a cynicism that on reflection seems so befitting of what was wrong with that year.

My relentlessly smug and overly optimistic, "How are you today, Mrs. Miller?" was always met with a bland "I don't know," and some sort of sneer. My guts would tighten but I plunged ahead, inquiring of this never-moving, twisted little old nursing home dump, this puppet-in-a-bed, this paper-skinned harpy if she could tell me "WHAT. . . EXACTLY" was wrong. Of course she never could; even if she had known she wouldn't have told me. Rather, she

would ask to have her phone moved closer, or tell me how wonderful and caring her attending physician was to her and how he had cured her with a combination of Ativan and Xanax. I had never met this physician, but I came to dislike him with a passion, too. His studied lack of visibility as well as his infrequent, scribbled progress notes— "Still weak. NOT ready for discharge. Arrange ID consult. Increase Synthroid to 0.2" —demanded I do at least the minimum possible for his patient.

By the second week my patience waned. What little good humor I had was exhausted on this woman. As I had seen happen with other difficult patients, Frank and I stopped caring. Mrs. Miller ceased to be real and became a thing, a joke, something to dispense with as soon as possible. Without remorse, I began to write her progress notes without even going to see her. To have taken her care seriously at that point would have seemed to me like foolish idealism or even a criticism of the status quo. I preferred to ignore the existence of this "social admission." I decided that she was a paradigm of the benign neglect beneath a facade of concern that was, in fact, Medicine.

My rationalization was that Mrs. Miller, unrepentant as ever, invited neglect. One day I actually bothered to look in on her. I suggested with a snide casualness that she wouldn't have urinary retention if she would cut back on her sedatives. "Oh no," she sniffed, "I'm sure it's not that." She dismissed me with a sneer and the elite air of a Connecticut Avenue widow whose last remnant of self worth is tied to tormenting the hired help. Late one night as we prepared to go home, she decided to break her loneliness and reannounce her existence with an episode of chest pain. To our credit, Frank and I didn't abandon her, but we weren't very nice either. With a tablet of Nitroglycerin and the procedural magic of an ECG, she became convinced that we had saved her from certain death. Relations seemed to improve over the next few days. She began to smile a wry smile as if to suggest she would soon be ready to return to the nursing home and die far

from my sphere of concern. She was almost likable. Cheerfully, I mentioned discharge.

The Inconvenience

Suddenly, after a ten-day hiatus, the attending notes reappeared— "Still weak. NOT ready for discharge. Arrange for pulmonary consult. Ativan returned to pre-admission dose." The malicious gray matter enveloped in that yellow, waxy, cachectic body had struck back. She intended to torment me until my hypocrisy was exposed. What she had not bargained for was the depth of cynicism the system had instilled in me. I would punish this woman for not being easy, for not dying quietly, for not conforming as I had to conform. I would use health care, or the lack of it, as a weapon against her individuality.

I attacked Mrs. Miller at her Achilles heel, her fear of being alone, browbeating her with discharge plans. And then, unexpectedly, Mrs. Miller's attending made his appearance, the first time we had seen him in the four weeks she had been in the hospital. A nondescript older man, he engaged us peevishly as he scurried away down the hall. His over-the-shoulder comments were made autocratically and with a terseness that suggested that his rank in the hierarchy was reason enough for us to carry out his commands. So this is what medical education boiled down to, I thought, and my little crusade was born. I began to highlight my discharge plans and to embellish my progress notes with "problem resolved" wherever I could. My satisfaction was palpable and my imagination was reawakened as I sought ways to drive this woman away.

Mrs. Miller's attending responded quickly and directly. He went on vacation and turned his service over to his hatchet man, an eager gerontologist from a prestigious residency with a self-righteous belief in patient advocacy. This guy wasted no time in his assault and greeted us the following morning with ten pages of nasty, insinuating, cover-your-DRG-ass

chartwork that included comments like, "extremely interesting case," "problem not fully explored by housestaff," "deserves full work-up," and "worthy of more aggressive resident attention." Indignant at the ingratitude for how we had put up with this nursing home dump for as long as we had, Frank and I went whining to our senior resident. A big, easy-going fellow, he cornered our nemesis gerontologist at the nurse's station and demanded to know why he chose to fight his battles in the chart. When the dust settled our honor was intact. As a concession to get Mrs. Miller out of our lives, we contemptuously agreed to repeat a few labs. This fishing trip would serve to demonstrate our fascination with a complex diagnostic dilemma and appease the status quo by demonstrating that there was, indeed, something to be learned from every patient. In truth, we smugly knew the gerontologist only wanted to undermine any utilization review criticism of an admission that had drifted without direction for over five weeks.

The next afternoon, 27 days after we had last bothered to check this waxy, yellow woman's liver enzymes, we stumbled onto a reason for her weakness. Frank dialed the phone with painful deliberation. "Sir," he said to the attending as we began to wither away, "Mrs. Miller's liver enzymes seem to be in the thousands." Defiant to the last, Mrs. Miller had declared her individuality by getting hepatitis. She reminded us that, whether we liked her or not, she was a real human being.

The Lesson

In the years since I failed to be a physician to Mrs. Miller, I've thought a lot about her. I've met other patients like her and all are difficult patients to treat and care about, but I try not to let circumstances rob them of their dignity. At four o'clock in the morning this is hard and I still fail at times. True compassion is always going to be the hardest part of this job. □

State of Affairs: The U.S.-Iran Medical Exchange Program

Then and Now

Shiva Jarrahi, MSIII

I recently returned from a six-week stay in Iran. In the last 15 years, the country has changed considerably since prerevolutionary times. A population explosion has taken place resulting in what one would expect: pollution has increased, traffic has worsened, and property values have skyrocketed. Gone are the wonderful mansions and great estates that once lined the streets of Teheran; in their place now are huge apartment complexes.

In addition to increased population, the economy of Iran remains that of a postwar society. In the 10 years of the revolution, and particularly during the '84 war with Iraq, very little was built or maintained within the cities. Compounding these problems are inflation that has increased 20-fold and the lack of supplies needed to rebuild the country. Iran has fallen from being a wealthy country, in many ways resembling the best of the first-world countries, to an obviously third-world country. Few vestiges remain of its previous wealth and glory.

The Impact of Revolution on the U.S.-Iran Medical Exchange

Now that some of the dust of political change has settled in Iran, I journeyed

back to visit some fellow medical students and to see what impact the revolution has had on medical education, in particular the status of the previous U.S.-Iran medical exchange.

In the past (before the revolution), foreign training in medical specialties was encouraged by Iran, as long as the physicians returned to Iran after completing their training. After completing study at an Iranian medical school and after an additional two years of military service (for male physicians)—a requirement occasionally waived for outstanding students—physicians could pay for and take the locally administered Educational Council for Foreign Medical Graduates (ECFMG) test. Once they had passed, physicians could then apply for international residency positions on an individual basis. This required submission of grades, recommendations, etc., just as in the United States, but finding a program that accepted foreign graduates was often a difficult task.

Once accepted into a residency program, individuals could take advantage of a special arrangement provided by the Iranian government for physicians wanting to do postdoctoral work abroad. These doctors had to take and pass a Visa Qualification Test after which they could obtain a special exchange visa for three to five years (the usual duration of most residencies). Afterwards the physician was required to return to Iran, and to ensure this, the physician had to leave a sizable financial guarantee as collateral, to be re-

claimed on return. These trainees usually found good positions in academic centers or private practice in both the United States and Iran.

The Situation Today

Today foreign travel is no longer encouraged by Iran; in addition, the U.S. also has restrictions that make such travel very difficult. First an individual must complete medical school. Male physicians must complete two years of obligatory military service—no exceptions—and females must undertake three to five years of service in an under-served area. After that, physicians who wish to take the ECFMG must obtain a visa to a country which administers the test, pay the travel expenses, and pay for the exam—all out of their own pockets. Naturally, these doctors must have independently wealthy families to be able to afford to travel abroad to take the necessary tests and to forego their financial collateral in Iran. The few who do manage to get to the United States are those who have already decided that they will practice here permanently.

Those who successfully pass the ECFMG may apply for residency positions abroad, but finding a residency program that accepts foreign graduates is very difficult. Even with acceptance into an American program, visas to the States are very difficult to obtain because Iran no longer has an American embassy, and the exchange visas are no

From Bowman Gray School of Medicine, Student Box, Medical Center Blvd., Winston-Salem, NC 27157.

"In spite of some recent improvement, the medical-political system in the United States continues to discriminate against foreign medical graduates."

longer available. In spite of some recent improvement, the medical-political system in the United States continues to discriminate against foreign medical graduates.

Furthermore, in the past it was sometimes difficult to get physicians to return to Iran from stays abroad. Physicians would specialize in the U.S. and

then realize that what they learned abroad was either not useful in Iran, or the necessary facilities or technology were not available there. Consequently, physicians often chose to remain and practice away from Iran. The losses to Iran were two-fold: 1) Iran lost money and time resources it had invested in the training of these physicians; 2) Iran lost the personnel needed to tend its sick.

A Proposal for the Future

A more practical solution for gaining useful specialty knowledge for Iranian medical schools eliminates both these problems and bypasses the difficulties of finding training positions abroad. Iran would invite foreign physicians, ideally those of Iranian descent, to Iran for short-term periods. There would be no language barrier and no hassles in-

volving U.S.-Iran relations. And, it is hoped, this arrangement would allow physicians who have been wanting to visit the opportunity to do so. Perhaps, some would visit annually or even stay permanently.

Currently, things are progressing slowly. A few physicians have gone to Iran as guest lecturers. A sponsoring university provides accommodations for the month(s) that the lecturer stays. Eventually, the Iranian medical schools would like a steady and continuous stream of visiting professors as lecturers. Some of these visitors have chosen to stay for extended periods or to return on a regular basis. If these ambitious plans eventually come to full fruition, all would benefit. Iran would gain from the service the physicians provide. Individual physicians would gain from the experience of returning to Iran or visiting for the first time. Who knows, even US-Iranian relations might benefit. □

Winchester®

Surgical Supply Company

Physician/

Hospital/

Home Care Supplies

3333 North Tryon Street
P.O. Box 35488
Charlotte, NC 28235
704/372-2240
800/874-2240

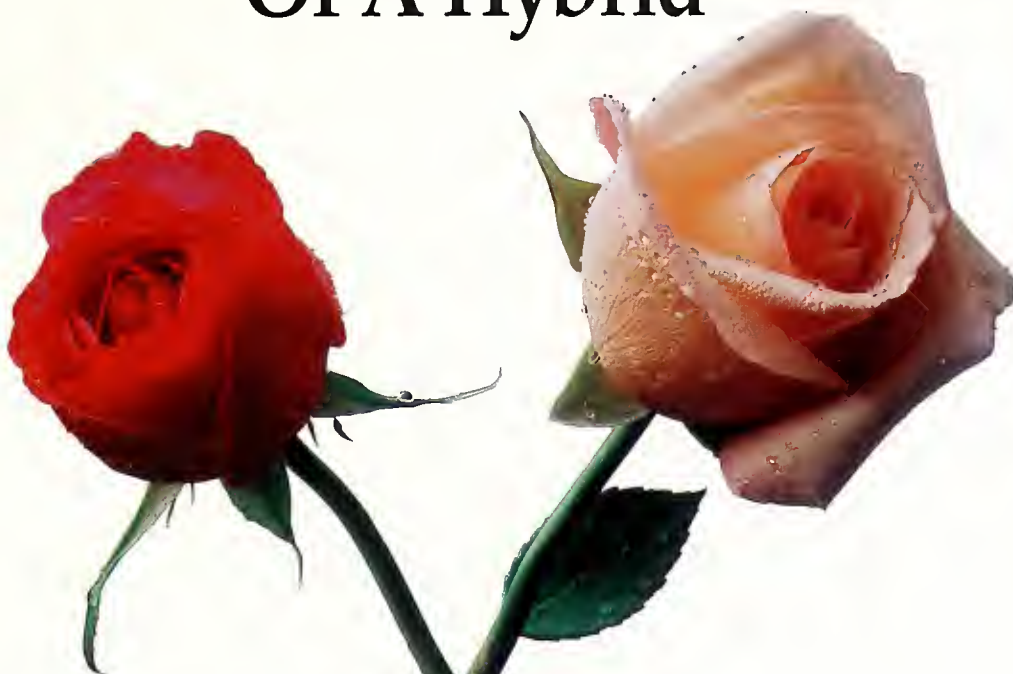
"Serving The Medical Profession Since 1919"

**Medical ♦ Surgical ♦ Laboratory ♦ Diagnostic
Equipment and Supplies**

Winchester Home Healthcare

Medical Supplies And Equipment For Your Patients At Home
Charlotte, North Carolina
704/332-1217

Discover The Elegance Of A Hybrid



At first glance, it's the *beauty* of a rose that catches the eye. The vibrant color. The delicately shaped petals. But study it more closely, and its *elegance* becomes apparent—a gentle blend of softness and strength.

At first glance, it's the *enhanced performance* of Vaseretic that catches the eye. But study Vaseretic more closely, and its *elegance* becomes apparent. The way its one-tablet, once-a-day dosage minimizes multiple

medications. Minimizes insurance copayments. And minimizes potassium supplementation.

A hybrid *blending of tolerability and power* that's available for the right patient. Vaseretic is indicated for the treatment of hypertension in patients for whom combination therapy is appropriate.

And an elegant discovery for your practice.

USE IN PREGNANCY: When used in pregnancy during the second and third trimesters, ACE inhibitors can cause injury and even death to the developing fetus. When pregnancy is detected, Vaseretic® (Enalapril Maleate-Hydrochlorothiazide) should be discontinued as soon as possible. See WARNINGS, Fetal/Neonatal Morbidity and Mortality.

VASERETIC® 10-25
Enalapril Maleate-Hydrochlorothiazide

Next

Dosage must be individualized; the fixed combination is not for initial therapy. Evaluation of the hypertensive patient should always include assessment of renal function.

For a Brief Summary of Prescribing Information, see adjacent pages.

**TABLETS
VASERETIC®
(ENALAPRIL MALEATE-HYDROCHLOROTHIAZIDE)**

10
mg



25
mg



USE IN PREGNANCY: When used in pregnancy during the second and third trimesters, ACE inhibitors can cause injury and even death to the developing fetus. When pregnancy is detected, VASERETIC (Enalapril Maleate-Hydrochlorothiazide) should be discontinued as soon as possible. See WARNINGS, Fetal/Neonatal Morbidity and Mortality.

CONTRAINDICATIONS: VASERETIC is contraindicated in patients who are hypersensitive to any component of this product and in patients with a history of angioedema related to previous treatment with an angiotensin converting enzyme inhibitor. Because of the hydrochlorothiazide component, this product is contraindicated in patients with anuria or hypersensitivity to other sulfonamide-derived drugs.

WARNINGS: General: Enalapril Maleate: Hypotension: Excessive hypotension was rarely seen in uncomplicated hypertensive patients but is a possible consequence of enalapril use in severely salt/volume depleted persons such as those treated vigorously with diuretics or patients on dialysis.

Syncope has been reported in 1.3 percent of patients receiving VASERETIC. In patients receiving enalapril alone, the incidence of syncope is 0.5 percent. The overall incidence of syncope may be reduced by proper titration of the individual components. (See PRECAUTIONS, Drug Interactions and ADVERSE REACTIONS.)

In patients with severe congestive heart failure, with or without associated renal insufficiency, excessive hypotension has been observed and may be associated with oliguria and/or progressive azotemia, and rarely with acute renal failure and/or death. Because of the potential fall in blood pressure in these patients, therapy should be started under very close medical supervision. Such patients should be followed closely for the first two weeks of treatment and whenever the dose of enalapril and/or diuretic is increased. Similar considerations may apply to patients with ischemic heart or cerebrovascular disease, in whom an excessive fall in blood pressure could result in a myocardial infarction or cerebrovascular accident.

If hypotension occurs, the patient should be placed in the supine position and, if necessary, receive an intravenous infusion of normal saline. A transient hypotensive response is not a contraindication to further doses, which usually can be given without difficulty once the blood pressure has increased after volume expansion.

Angioedema: Angioedema of the face, extremities, lips, tongue, glottis and/or larynx has been reported in patients treated with angiotensin converting enzyme inhibitors, including enalapril. In such cases VASERETIC should be promptly discontinued and appropriate therapy and monitoring should be provided until complete and sustained resolution of signs and symptoms has occurred. In instances where swelling has been confined to the face and lips the condition has generally resolved without treatment, although antihistamines have been useful in relieving symptoms. Angioedema associated with laryngeal edema may be fatal. Where there is involvement of the tongue, glottis or larynx, likely to cause airway obstruction, appropriate therapy, e.g., subcutaneous epinephrine solution 1:1000 (0.3 mL to 0.5 mL) and/or measures necessary to ensure a patent airway, should be promptly provided. (See ADVERSE REACTIONS.)

Patients with a history of angioedema unrelated to ACE inhibitor therapy may be at increased risk of angioedema while receiving an ACE inhibitor (see also CONTRAINDICATIONS).

Neutropenia/Agranulocytosis: Another angiotensin converting enzyme inhibitor, captopril, has been shown to cause agranulocytosis and bone marrow depression, rarely in uncomplicated patients but more frequently in patients with renal impairment especially if they also have a collagen vascular disease. Available data from clinical trials of enalapril are insufficient to show that enalapril does not cause agranulocytosis at similar rates. Marketing experience has revealed several cases of neutropenia or agranulocytosis in which a causal relationship to enalapril cannot be excluded. Periodic monitoring of white blood cell counts in patients with collagen vascular disease and renal disease should be considered.

Hydrochlorothiazide: Thiazides should be used with caution in severe renal disease. In patients with renal disease, thiazides may precipitate azotemia. Cumulative effects of the drug may develop in patients with impaired renal function.

Thiazides should be used with caution in patients with impaired hepatic function or progressive liver disease, since minor alterations of fluid and electrolyte balance may precipitate hepatic coma.

Sensitivity reactions may occur in patients with or without a history of allergy or bronchial asthma.

The possibility of exacerbation or activation of systemic lupus erythematosus has been reported.

Lithium generally should not be given with thiazides (see PRECAUTIONS, Drug Interactions, Enalapril Maleate and Hydrochlorothiazide).

Pregnancy, Enalapril-Hydrochlorothiazide: There was no teratogenicity in rats given up to 90 mg/kg/day of enalapril (150 times the maximum human dose) in combination with 10 mg/kg/day of hydrochlorothiazide (2 1/2 times the maximum human dose) or in mice given up to 30 mg/kg/day of enalapril (50 times the maximum human dose) in combination with 10 mg/kg/day of hydrochlorothiazide (2 1/2 times the maximum human dose). At these doses, fetotoxicity expressed as a decrease in average fetal weight occurred in both species. No fetotoxicity occurred at lower doses; 30/10 mg/kg/day of enalapril-hydrochlorothiazide in rats and 10/10 mg/kg/day of enalapril-hydrochlorothiazide in mice.

When used in pregnancy during the second and third trimesters, ACE inhibitors can cause injury and even death to the developing fetus. When pregnancy is detected, VASERETIC should be discontinued as soon as possible. (See Enalapril Maleate, Fetal/Neonatal Morbidity and Mortality, below.)

Enalapril Maleate, Fetal/Neonatal Morbidity and Mortality: ACE inhibitors can cause fetal and neonatal morbidity and death when administered to pregnant women. Several dozen cases have been reported in the world literature. When pregnancy is detected, ACE inhibitors should be discontinued as soon as possible.

The use of ACE inhibitors during the second and third trimesters of pregnancy has been associated with fetal and neonatal injury, including hypotension, neonatal skull hypoplasia, anuria, reversible or irreversible renal failure, and death. Oligohydramnios has also been reported, presumably resulting from decreased fetal renal function; oligohydramnios in this setting has been associated with fetal limb contractures, craniofacial deformation, and hypoplastic lung development. Prematurity, intrauterine growth retardation, and patent ductus arteriosus have also been reported, although it is not clear whether these occurrences were due to the ACE-inhibitor exposure.

These adverse effects do not appear to have resulted from intrauterine ACE-inhibitor exposure that has been limited to the first trimester. Mothers whose embryos and fetuses are exposed to ACE inhibitors only during the first trimester should be so informed. Nonetheless, when patients become pregnant, physicians should make every effort to discontinue the use of VASERETIC as soon as possible.

Rarely (probably less often than once in every thousand pregnancies), no

alternative to ACE inhibitors will be found. In these rare cases, the mothers should be apprised of the potential hazards to their fetuses, and serial ultrasound examinations should be performed to assess the intraamniotic environment.

If oligohydramnios is observed, VASERETIC should be discontinued unless it is considered lifesaving for the mother. Contraction stress testing (CST), a non-stress test (NST), or biophysical profiling (BPP) may be appropriate, depending upon the week of pregnancy. Patients and physicians should be aware, however, that oligohydramnios may not appear until after the fetus has sustained irreversible injury.

Infants with histories of *in utero* exposure to ACE inhibitors should be closely observed for hypotension, oliguria, and hyperkalemia. If oliguria occurs, attention should be directed toward support of blood pressure and renal perfusion. Exchange transfusion or dialysis may be required as means of reversing hypotension and/or substituting for disordered renal function. Enalapril, which crosses the placenta, has been removed from neonatal circulation by peritoneal dialysis with some clinical benefit, and theoretically may be removed by exchange transfusion, although there is no experience with the latter procedure.

No teratogenic effects of enalapril were seen in studies of pregnant rats, and rabbits. On a mg/kg basis, the doses used were up to 333 times (in rats), and 50 times (in rabbits) the maximum recommended human dose.

Hydrochlorothiazide, Teratogenic Effects: Reproduction studies in the rabbit, mouse and the rat at doses up to 100 mg/kg/day (50 times the human dose) showed no evidence of external abnormalities of the fetus due to hydrochlorothiazide. Hydrochlorothiazide given in a two-litter study in rats at doses of 4 - 5.6 mg/kg/day (approximately 1 - 2 times the usual daily human dose) did not impair fertility or produce birth abnormalities in the offspring. Thiazides cross the placental barrier and appear in cord blood.

Neonatal Effects: These may include fetal or neonatal jaundice, thrombocytopenia, and possibly other adverse reactions which have occurred in the adult.

PRECAUTIONS: General: Enalapril Maleate: Impaired Renal Function: As a consequence of inhibiting the renin-angiotensin-aldosterone system, changes in renal function may be anticipated in susceptible individuals. In patients with severe congestive heart failure whose renal function may depend on the activity of the renin-angiotensin-aldosterone system, treatment with angiotensin converting enzyme inhibitors, including enalapril, may be associated with oliguria and/or progressive azotemia and rarely with acute renal failure and/or death.

In clinical studies in hypertensive patients with unilateral or bilateral renal artery stenosis, increases in blood urea nitrogen and serum creatinine were observed in 20 percent of patients. These increases were almost always reversible upon discontinuation of enalapril and/or diuretic therapy. In such patients renal function should be monitored during the first few weeks of therapy.

Some patients with hypertension or heart failure with no apparent pre-existing renal vascular disease have developed increases in blood urea and serum creatinine, usually minor and transient, especially when enalapril has been given concomitantly with a diuretic. This is more likely to occur in patients with pre-existing renal impairment. Dose reduction of enalapril and/or discontinuation of the diuretic may be required.

Evaluation of the hypertensive patient should always include assessment of renal function.

Hemodialysis Patients: Anaphylactoid reactions have been reported in patients dialyzed with high-flux membranes (e.g., AN 69) and treated concomitantly with an ACE inhibitor. In these patients consideration should be given to using a different type of dialysis membrane or a different class of antihypertensive agent.

Hyperkalemia: Elevated serum potassium (greater than 5.7 mEq/L) was observed in approximately one percent of hypertensive patients in clinical trials treated with enalapril alone. In most cases, these were isolated values which resolved despite continued therapy, although hyperkalemia was a cause of discontinuation of therapy in 0.28 percent of hypertensive patients. Hyperkalemia was less frequent (approximately 0.1 percent) in patients treated with enalapril plus hydrochlorothiazide. Risk factors for the development of hyperkalemia include renal insufficiency, diabetes mellitus, and the concomitant use of potassium-sparing diuretics, potassium supplements and/or potassium-containing salt substitutes, which should be used cautiously, if at all, with enalapril. (See Drug Interactions.)

Cough: Cough has been reported with the use of ACE inhibitors. Characteristically, the cough is nonproductive, persistent and resolves after discontinuation of therapy. ACE inhibitor-induced cough should be considered as part of the differential diagnosis of cough.

Surgery/Anesthesia: In patients undergoing major surgery or during anesthesia with agents that produce hypotension, enalapril may block angiotensin II formation secondary to compensatory renin release. If hypotension occurs and is considered to be due to this mechanism, it can be corrected by volume expansion.

Hydrochlorothiazide: Periodic determination of serum electrolytes to detect possible electrolyte imbalance should be performed at appropriate intervals. All patients receiving thiazide therapy should be observed for clinical signs of fluid or electrolyte imbalance: hyponatremia, hypochloremic alkalosis, and hypokalemia. Serum and urine electrolyte determinations are particularly important when the patient is vomiting excessively or receiving parenteral fluids. Warning signs or symptoms of fluid and electrolyte imbalance, irrespective of cause, include dryness of mouth, thirst, weakness, lethargy, drowsiness, restlessness, confusion, seizures, muscle pains or cramps, muscular fatigue, hypotension, oliguria, tachycardia, and gastrointestinal disturbances such as nausea and vomiting.

Hypokalemia may develop, especially with brisk diuresis, when severe or chronic is present, or after prolonged therapy. Interference with adequate oral electrolyte intake will also contribute to hypokalemia. Hypokalemia may cause cardiac arrhythmia and may also sensitize or exaggerate the response of the heart to the toxic effects of digitalis (e.g., increased ventricular irritability). Because enalapril reduces the production of aldosterone, concomitant therapy with enalapril attenuates the diuretic-induced potassium loss (see Drug Interactions, Agents Increasing Serum Potassium).

Although any chloride deficit is generally mild and usually does not require specific treatment except under extraordinary circumstances (as in liver disease or renal disease), chloride replacement may be required in the

treatment of metabolic alkalosis.

Dilutional hyponatremia may occur in edematous patients in hot weather. appropriate therapy is water restriction, rather than administration of salt except in rare instances when the hyponatremia is life-threatening. In actual salt depletion, appropriate replacement is the therapy of choice.

Hyperuricemia may occur or frank gout may be precipitated in certain patients receiving thiazide therapy.

In diabetic patients dosage adjustments of insulin or oral hypoglycemic agents may be required. Hypoglycemia may occur with thiazide diuretics. Thus latent diabetes mellitus may become manifest during thiazide therapy.

The antihypertensive effects of the drug may be enhanced in the postmyopathic patient.

If progressive renal impairment becomes evident consider withholding or discontinuing diuretic therapy.

Thiazides have been shown to increase the urinary excretion of magnesium, thus may result in hypomagnesemia.

Thiazides may decrease urinary calcium excretion. Thiazides may cause intermittent and slight elevation of serum calcium in the absence of known disorders of calcium metabolism. Marked hypercalcemia may be evidence of hidden hyperparathyroidism. Thiazides should be discontinued before carrying out tests for parathyroid function.

Increases in cholesterol and triglyceride levels may be associated with thiazide diuretic therapy.

Information for Patients: Angioedema: Angioedema, including laryngeal edema, may occur especially following the first dose of enalapril. Patients should be so advised and told to report immediately any signs or symptoms suggesting angioedema (swelling of the face, extremities, eyes, lips, tongue, difficulty in swallowing or breathing) and to take no more drug until they have consulted with the prescribing physician.

Hypotension: Patients should be cautioned to report lightheadedness especially during the first few days of therapy. If actual syncope occurs, the patients should be told to discontinue the drug until they have consulted with the prescribing physician.

All patients should be cautioned that excessive perspiration and dehydration may lead to an excessive fall in blood pressure because of reduction in fluid volume. Other causes of volume depletion such as vomiting or diarrhea may also lead to a fall in blood pressure; patients should be advised to consult with the physician.

Hyperkalemia: Patients should be told not to use salt substitutes containing potassium without consulting their physician.

Neutropenia: Patients should be told to report promptly any indication of infection (e.g., sore throat, fever) which may be a sign of neutropenia.

Pregnancy: Female patients of childbearing age should be told about the consequences of second- and third-trimester exposure to ACE inhibitors, and they should also be told that these consequences do not appear to have resulted from intrauterine ACE-inhibitor exposure that has been limited to the first trimester. These patients should be asked to report pregnancies to their physicians as soon as possible.

NOTE: As with many other drugs, certain advice to patients being treated with VASERETIC is warranted. This information is intended to aid in the safe and effective use of this medication. It is not a disclosure of all possible adverse or intended effects.

Drug Interactions: Enalapril Maleate: Hypotension—Patients on Diuretic Therapy: Patients on diuretics and especially those in whom diuretic therapy was recently instituted, may occasionally experience an excessive reduction of blood pressure after initiation of therapy with enalapril. The possibility of hypotensive effects with enalapril can be minimized by either discontinuing the diuretic or increasing the salt intake prior to initiation of treatment with enalapril. If it is necessary to continue the diuretic, provide medical supervision for at least two hours and until blood pressure has stabilized for at least an additional hour. (See WARNINGS.)

Agents Causing Renin Release: The antihypertensive effect of enalapril is augmented by antihypertensive agents that cause renin release (e.g., diuretics).

Other Cardiovascular Agents: Enalapril has been used concomitantly with beta adrenergic-blocking agents, methyldopa, nitrates, calcium-blocking agents, hydralazine and prazosin without evidence of clinically significant adverse interactions.

Agents Increasing Serum Potassium: Enalapril attenuates diuretic-induced potassium loss. Potassium-sparing diuretics (e.g., spironolactone, triamterene, or amiloride), potassium supplements, or potassium-containing salt substitutes may lead to significant increases in serum potassium. Therefore, if concomitant use of these agents is indicated because of demonstrated hypokalemia they should be used with caution and with frequent monitoring of serum potassium.

Lithium: Lithium toxicity has been reported in patients receiving lithium concomitantly with drugs which cause elimination of sodium, including ACE inhibitors. A few cases of lithium toxicity have been reported in patients receiving concomitant enalapril and lithium and were reversible upon discontinuation of both drugs. It is recommended that serum lithium levels be monitored frequently if enalapril is administered concomitantly with lithium. Hydrochlorothiazide: When administered concurrently the following drugs may interact with thiazide diuretics:

Alcohol, barbiturates, or narcotics—potentiation of orthostatic hypotension may occur.

Antidiabetic drugs (oral agents and insulin)—dosage adjustment of the antidiabetic drug may be required.

Other antihypertensive drugs—additive effect or potentiation.

Cholestyramine and colestipol resins—Absorption of hydrochlorothiazide is impaired in the presence of anionic exchange resins. Single doses of either cholestyramine or colestipol resins bind the hydrochlorothiazide and reduce its absorption from the gastrointestinal tract by up to 85 and 43 percent, respectively.

Corticosteroids, ACTH—intensified electrolyte depletion, particularly hypokalemia.

Pressor amines (e.g., norepinephrine)—possible decreased response to pressor amines but not sufficient to preclude their use.

Skeletal muscle relaxants, nondepolarizing (e.g., tubocurarine)—possible increased responsiveness to the muscle relaxant.

Lithium—should not generally be given with diuretics. Diuretic agents reduce the renal clearance of lithium and add a high risk of lithium toxicity. Refer to the package insert for lithium preparations before use of such preparations with VASERETIC.

Non-steroidal Anti-inflammatory Drugs—In some patients, the administration of a non-steroidal anti-inflammatory agent can reduce the diuretic, natriuretic, and antihypertensive effects of loop, potassium-sparing and thiazide diuretics. Therefore, when VASERETIC and non-steroidal anti-inflammatory agents are used concomitantly, the patient should be observed closely to determine if the desired effect of the diuretic is obtained.

Carcinogenesis, Mutagenesis, Impairment of Fertility: Enalapril in combination with hydrochlorothiazide was not mutagenic in the Ames microbial mutagen test with or without metabolic activation. Enalapril-hydrochlorothiazide did not produce DNA single strand breaks in an *in vitro* alkaline elution assay in rat hepatocytes or chromosomal aberrations in an *in vivo* mouse

* Registered trademark of Hospital Ltd.

bone marrow assay. There was no evidence of a tumorigenic effect when enalapril was administered for 106 weeks to rats at doses up to 90 mg/kg/day (180 times the maximum daily human dose). Enalapril has also been administered for 94 weeks to male and female mice at doses up to 90 and 180 mg/kg/day, respectively (180 and 360 times the maximum daily dose for humans) and showed no evidence of carcinogenicity.

Neither enalapril maleate nor the active diacid was mutagenic in the Ames microbial mutagen test with or without metabolic activation. Enalapril was also negative in the following genotoxicity studies: *in vitro* reverse mutation assay with *E. coli*, sister chromatid exchange with cultured mammalian cells, and the micronucleus test with mice, as well as in an *in vivo* cytogenetic study using mouse bone marrow.

There were no adverse effects on reproductive performance in male and female rats treated with 10 to 90 mg/kg/day of enalapril.

Hydrochlorothiazide: Two-year feeding studies in mice and rats conducted under the auspices of the National Toxicology Program (NTP) uncovered no evidence of a carcinogenic potential of hydrochlorothiazide in female mice (at doses of up to approximately 600 mg/kg/day) or in male and female rats (at doses of up to approximately 100 mg/kg/day). The NTP, however, found equivocal evidence for hepatocarcinogenicity in male mice.

Hydrochlorothiazide was not genotoxic *in vitro* in the Ames mutagenicity assay of *Salmonella typhimurium* strains TA 98, TA 100, TA 1535, TA 1537, and TA 1538 and in the Chinese Hamster Ovary (CHO) test for chromosomal aberrations, or *in vivo* in assays using germinal cell chromosomes. Chinese hamster bone marrow chromosomes, and the *Drosophila* sex-linked recessive lethal trait gene. Positive test results were obtained only in the *in vitro* CHO Sister Chromatid Exchange (clastogenicity) and in the Mouse Lymphoma Cell (mutagenicity) assays, using concentrations of hydrochlorothiazide from 43 to 1300 µg/mL, and in the *Aspergillus nidulans*-non-disjunction assay at an unspecified concentration.

Hydrochlorothiazide had no adverse effects on the fertility of mice and rats of either sex in studies wherein these species were exposed, via their diet, to doses of up to 100 and 4 mg/kg, respectively, prior to conception and throughout gestation.

Pregnancy: Pregnancy Categories C (first trimester) and D (second and third trimesters). See WARNINGS, **Pregnancy**, **Enalapril Maleate**, **Fetal/Neonatal Morbidity and Mortality**.

Nursing Mothers: Enalapril and enalaprilat are detected in human milk in trace amounts. Thiazides do appear in human milk. Because of the potential for serious reactions in nursing infants from either drug, a decision should be made whether to discontinue nursing or to discontinue VASERETIC, taking into account the importance of the drug to the mother.

Pediatric Use: Safety and effectiveness in children have not been established.

ADVERSE REACTIONS: VASERETIC has been evaluated for safety in more than 1500 patients, including over 300 patients treated for one year or more. In clinical trials with VASERETIC no adverse experiences peculiar to this combination drug have been observed. Adverse experiences that have occurred have been limited to those that have been previously reported with enalapril or hydrochlorothiazide.

The most frequent clinical adverse experiences in controlled trials were: dizziness (8.6 percent), headache (5.5 percent), fatigue (3.9 percent) and cough (3.5 percent). Adverse experiences occurring in greater than two percent of patients treated with VASERETIC in controlled clinical trials were: muscle cramps (2.7 percent), nausea (2.5 percent), asthenia (2.4 percent), orthostatic effects (2.3 percent), impotence (2.2 percent), and diarrhea (2.1 percent).

Clinical adverse experiences occurring in 0.5 to 2.0 percent of patients in controlled trials included: **Body As A Whole:** Syncope, chest pain, abdominal pain; **Cardiovascular:** Orthostatic hypotension, palpitation, tachycardia; **Digestive:** Vomiting, dyspepsia, constipation, flatulence, dry mouth; **Nervous/Psychiatric:** Insomnia, nervousness, paresthesia, somnolence, vertigo; **Skin:** Pruritus, rash; **Other:** Dyspnea, gout, back pain, arthralgia, arthralgia, decreased libido, tinnitus, urinary tract infection.

Angioedema: Angioedema has been reported in patients receiving VASERETIC (0.6 percent). Angioedema associated with laryngeal edema may be fatal. If angioedema of the face, extremities, lips, tongue, glottis and/or larynx occurs, treatment with VASERETIC should be discontinued and appropriate therapy instituted immediately. (See WARNINGS.)

Hypotension: In clinical trials, adverse effects relating to hypotension occurred as follows: hypotension (0.4 percent), orthostatic hypotension (1.5 percent), other orthostatic effects (2.3 percent). In addition syncope occurred in 1.3 percent of patients. (See WARNINGS.)

Cough: See PRECAUTIONS, **Cough**.

Clinical Laboratory Test Findings: **Serum Electrolytes:** See PRECAUTIONS.

Creatinine, Blood Urea Nitrogen: In controlled clinical trials minor increases in blood urea nitrogen and serum creatinine, reversible upon discontinuation of therapy, were observed in about 0.6 percent of patients with essential hypertension treated with VASERETIC. More marked increases have been reported in other enalapril experience. Increases are more likely to occur in patients with renal artery stenosis. (See PRECAUTIONS.)

Serum Uric Acid, Glucose, Magnesium, and Calcium: See PRECAUTIONS.

Hemoglobin and Hematocrit: Small decreases in hemoglobin and hematocrit (mean decreases of approximately 0.3 g percent and 1.0 vol percent, respectively) occur frequently in hypertensive patients treated with VASERETIC but are rarely of clinical importance unless another cause of anemia coexists. In clinical trials, less than 0.1 percent of patients discontinued therapy due to anemia.

Liver Function Tests: Rarely, elevations of liver enzymes and/or serum bilirubin have occurred. Other adverse reactions that have been reported with the individual components are listed below and, within each category, are in order of decreasing severity.

Enalapril Maleate: Enalapril has been evaluated for safety in more than 10,000 patients. In clinical trials adverse reactions which occurred with enalapril were also seen with VASERETIC. However, since enalapril has been marketed, the following adverse reactions have been reported: **Body As A Whole:** Anaphylactoid reactions (see PRECAUTIONS, **Hypersensitivity**); **Cardiovascular:** Cardiac arrest, myocardial infarction or cerebrovascular accident, possibly secondary to excessive hypotension in high risk patients (see WARNINGS, **Hypotension**); pulmonary embolism and infarction; pulmonary edema; rhythm disturbances including atrial tachycardia and bradycardia; atrial fibrillation; hypotension; angina pectoris; **Digestive:** Ileus, pancreatitis, hepatic failure, hepatitis (hepatocellular [proven or challenging] or cholestatic jaundice), melena, anorexia, glossitis, stomatitis, dry mouth, **Hematologic:** Rare cases of neutropenia, thrombocytopenia and bone marrow depression. Hemolytic anemia, including cases of hemolysis in patients with G-6-PD deficiency, has been reported; a causal relationship to enalapril has not been established.

Nervous/Psychiatric: Depression, confusion, ataxia, peripheral neuropathy (e.g., paresthesia, dysesthesia); **Urogenital:** Renal failure, oliguria, renal dysfunction (see PRECAUTIONS, **Renal**); **Gynecologic:** **Respiratory:** Pulmonary infiltrates, bronchospasm, pneumonia, bronchitis, rhinorrhea, sore throat and hoarseness, asthma, upper respiratory infection; **Skin:** Exfoliative dermatitis, toxic epidermal necrolysis, Stevens-Johnson syndrome, herpes zoster, erythema multiforme, urticaria, pemphigus, alopecia, flushing, photosensitivity; **Special Senses:** Blurred vision, taste alteration, anosmia, conjunctivitis, dry eyes, tearing.

Miscellaneous: A symptom complex has been reported which may include a positive ANA, an elevated erythrocyte sedimentation rate, arthralgia/arthritis, myalgia/myositis, fever, serositis, vasculitis, leukocytosis, eosinophilia, photosensitivity, rash and other dermatologic manifestations.

Fetal/Neonatal Morbidity and Mortality: See WARNINGS, **Pregnancy**, **Enalapril Maleate**, **Fetal/Neonatal Morbidity and Mortality**.

Hydrochlorothiazide: **Body As A Whole:** Weakness; **Digestive:** Pancreatitis, jaundice (intrahepatic cholestatic jaundice), sialadenitis, cramping, gastric irritation, anorexia; **Hematologic:** Aplastic anemia, agranulocytosis, leukopenia, hemolytic anemia, thrombocytopenia; **Hypersensitivity:** Purpura, photosensitivity, urticaria, necrotizing angitis (vasculitis and cutaneous vasculitis), fever, respiratory distress including pneumonitis and pulmonary edema, anaphylactic reactions; **Musculoskeletal:** Muscle spasm; **Nervous System/Psychiatric:** Restlessness; **Renal:** Renal failure, renal dysfunction, interstitial nephritis (see WARNINGS); **Skin:** Erythema multiforme including Stevens-Johnson syndrome, exfoliative dermatitis including toxic epidermal necrolysis, alopecia; **Special Senses:** Transient blurred vision, xanthopsia.

* Based on patient weight of 50 kg

For more detailed information, consult your DuPont Pharm Representative or see Prescribing Information.

Dist. by

MERCK & CO., INC.
West Point, PA 19486, USA

Issued June 1993
7432318

Printed in USA

YOCON® YOHIMBINE HCl

Description: Yohimbine is a 3a-15a-20B-17a-hydroxy Yohimbine-16a-carboxylic acid methyl ester. The alkaloid is found in Rubiaceae and related trees. Also in *Rauwolfia Serpentina* (L) Benth. Yohimbine is an indolalkylamine alkaloid with chemical similarity to reserpine. It is a crystalline powder, odorless. Each compressed tablet contains (1/12 gr.) 5.4 mg of Yohimbine Hydrochloride.

Action: Yohimbine blocks presynaptic alpha-2 adrenergic receptors. Its action on peripheral blood vessels resembles that of reserpine, though it is weaker and of short duration. Yohimbine's peripheral autonomic nervous system effect is to increase parasympathetic (cholinergic) and decrease sympathetic (adrenergic) activity. It is to be noted that in male sexual performance, erection is linked to cholinergic activity and to alpha-2 adrenergic blockade which may theoretically result in increased penile inflow, decreased penile outflow or both.

Yohimbine exerts a stimulating action on the mood and may increase anxiety. Such actions have not been adequately studied or related to dosage although they appear to require high doses of the drug. Yohimbine has a mild anti-diuretic action, probably via stimulation of hypothalamic centers and release of posterior pituitary hormone.

Reportedly, Yohimbine exerts no significant influence on cardiac stimulation and other effects mediated by B-adrenergic receptors, its effect on blood pressure, if any, would be to lower it, however no adequate studies are at hand to quantitate this effect in terms of Yohimbine dosage.

Indications: Yocon® is indicated as a sympathicolytic and mydriatic. It may have activity as an aphrodisiac.

Contraindications: Renal diseases, and patient's sensitive to the drug. In view of the limited and inadequate information at hand, no precise tabulation can be offered of additional contraindications.

Warning: Generally, this drug is not proposed for use in females and certainly must not be used during pregnancy. Neither is this drug proposed for use in pediatric, geriatric or cardio-renal patients with gastric or duodenal ulcer history. Nor should it be used in conjunction with mood-modifying drugs such as antidepressants, or in psychiatric patients in general.

Adverse Reactions: Yohimbine readily penetrates the (CNS) and produces a complex pattern of responses in lower doses than required to produce peripheral α-adrenergic blockade. These include, anti-diuresis, a general picture of central excitation including elevation of blood pressure and heart rate, increased motor activity, irritability and tremor. Sweating, nausea and vomiting are common after parenteral administration of the drug.^{1,2} Also dizziness, headache, skin flushing reported when used orally.^{1,3}

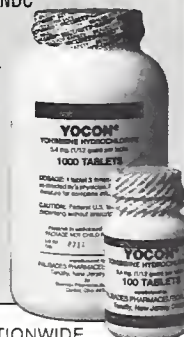
Dosage and Administration: Experimental dosage reported in treatment of erectile impotence.^{1,3,4} 1 tablet (5.4 mg) 3 times a day, to adult males taken orally. Occasional side effects reported with this dosage are nausea, dizziness or nervousness. In the event of side effects dosage to be reduced to ½ tablet 3 times a day, followed by gradual increases to 1 tablet 3 times a day. Reported therapy not more than 10 weeks.³

How Supplied: Oral tablets of Yocon® 1/12 gr. 5.4 mg in bottles of 100's NDC 53159-001-01 and 1000's NDC 53159-001-10.

References:

1. A. Morales et al., New England Journal of Medicine: 1221, November 12, 1981.
2. Goodman, Gilman — The Pharmacological basis of Therapeutics 6th ed., p. 176-188. McMillan December Rev. 1/85.
3. Weekly Urological Clinical letter, 27:2, July 4, 1983.
4. A. Morales et al., The Journal of Urology 128: 45-47, 1982.

Rev. 1/85



AVAILABLE AT PHARMACIES NATIONWIDE

**PALISADES
PHARMACEUTICALS, INC.**

64 North Summit Street
Tenafly, New Jersey 07670
(201) 569-8502
1-800-237-9083

The Cost of Violence

The Economy of Health Care Delivery for Non-Accidental Trauma in an Urban Southeastern Community

Francis Robicsek, M.D., Beth Ribbeck, M.S., L.G. Walker, M.D.,
Michael H. Thomason, M.D., John I. Hollenbeck, M.D., and John W. Baker, M.D.

The National Safety Council estimated that in 1988 the economic cost of accidents in the United States totalled \$143.4 billion. This number includes medical expenses as well as lost wages, property damage, and other indirect costs,¹ but does not include costs due to injuries caused by non-accidental trauma such as suicides and assaults. The economic impact of non-accidental trauma is not presently known but we do know that the number of victims of violence has been increasing over the last three decades. For example, only 8,464 homicides were reported in 1960 compared to 21,731 in 1986.^{1,2} Non-accidental causes were ascribed to 36% of all trauma-related deaths in the US in 1986.¹

To date, surveillance reports of non-accidental injury have usually relied on general mortality statistics and hospital discharge data.³⁻⁵ The American Medical Association Council on Scientific Affairs has stated⁶ that "there are virtually no reliable data available on the numbers of nonfatal firearm injuries," one of the most common causes of non-accidental injury. However, it is important to include all costs, even those of less severe injuries, be-

cause, although they are easily treated in an emergency room, in aggregate they result in enormous expenditures for medical care.³

We undertook this study to examine in a prospective manner the hospital charges and the sociodemographic background of victims of non-accidental trauma (assault and suicide) treated at a regional trauma center in a southeastern urban community.

Methods

The Carolinas Medical Center (CMC) is an 843-bed Level I Trauma Center located in Charlotte, North Carolina. The CMC draws patients from surrounding Mecklenburg County (population 511,433) and, to a lesser degree, from neighboring counties. By agreement with the other three general care hospitals in the county, CMC is designated as the sole treatment center for all victims of penetrating trauma. Therefore, a survey of CMC's Emergency Department records, together with data from the Mecklenburg County Medical Examiner, provides a nearly complete account of non-accidental trauma in this southeastern community.

For the purposes of this study, we defined "assault" as being denoted by ICD9-CM cause codes E960-E969; "suicide" by E950-E959, and "accidental injury" by E800-E949.⁷ Assault cause codes cover injury purposely in-

flicted by other persons (fights, brawls, rapes, poisoning, strangulations, bites, child abuse, pushing from a high place, arson, and assaults with firearms, explosives, blunt objects or cutting instruments). Suicide cause codes cover self-inflicted injuries specified as intentional (poisoning, asphyxiation, strangulation, suffocation, hanging, jumping, electrocution, and self-inflicted injuries from firearms, explosives, fire, or cutting instruments). Accidental injury codes cover all unintentional injuries including falls, burns, transportation, sports, and occupational injuries. Data on out-of-hospital deaths due to non-accidental injury were obtained from the Mecklenburg County Medical Examiner's Office. Regional census data were obtained from the 1990 federal census unless otherwise noted.⁸

In order to have prospective data on all injuries presenting to the Emergency Department of the CMC,⁹ we developed a new emergency department (ED) interim record (intake form) that included a checklist of injury causes and corresponding E codes. Using this record, registered nurses at the triage desk recorded cause of injury, chief complaint, vital signs, and treatment priority on all patients at initial encounter. In addition to noting specific causes of injury, the interim form allowed recording "Not an Injury" for illness-related visits and "Repeat Visit, Any Injury" to distinguish follow-up visits

From the Carolinas Heart Institute, the Heineman Research Laboratories, and the Carolinas Medical Center, Charlotte, NC 28203.

Table 1. Gender and Hospital Disposition of Intentionally and Accidentally Injured Patients

Cause of Injury	Treated & Released		Admitted to Regular Unit		Admitted to Intensive Care		Totals
	Men	Women	Men	Women	Men	Women	
Assaults	2,720 (56%)	1,386 (28%)	477 (10%)	78 (2%)	188 (4%)	25 (0.5%)	4,874
Suicide Attempts	154 (41%)	102 (27%)	32 (9%)	24 (6%)	32 (9%)	31 (8%)	375
Accidents	8,739 (51%)	6,228 (36%)	820 (5%)	525 (3%)	546 (3%)	245 (1%)	17,103

from primary injury encounters. Return visits were recorded separately, and only data from primary injury-related encounters are analyzed here.

Entries into the interim record were made in duplicate. One copy remained with the patient in the treatment area; the other copy was sent to the emergency department business office where information on type of employment and insurance status was obtained and entered into the hospital's mainframe computer (Unisys A17 mainframe with PRM2000 software from Unisys Health Services, Bluebell, Pennsylvania). The interim record was then sent to Medical Records where a dedicated records technician entered E code information from the form into a vacant field of the patient's record in the same mainframe computer. We used this database to evaluate patients injured by intentional means during the one-year period October 1, 1989 to September 30, 1990.

Results

During the one-year study period a total of 89,791 patients presented themselves to the Emergency Department of the CMC; 77,375 (86%) were treated and released from the ED and 12,416 (14%) were admitted.

Primary injuries accounted for 22,352 (25%) of the total number of patients seen in the Emergency Department. Repeat visits for previously treated injuries (suture removal, cast or dressing change, etc.) accounted for an additional 2,931 (3%) of patient encounters. Of patients seen for primary injury encounters, 19,329 (86%) were treated and released and 3,023 (14%) admitted to the hospital. Residents of Mecklenburg County made up 19,263 (86%) of those treated, and residents of

surrounding counties, the remaining 3,089 patients (14%). Of this later group, 2,041 (66%) were treated and released and 1,048 (34%) were admitted.

The cause of injury was classified as non-accidental in 5,249 (23%) of the 22,352 injured patients; 4,362 (83%) of the 5,249 were treated and released and 887 (17%) hospitalized. Assault was the reported cause in 4,874 (93%) cases and suicide in the remaining 375 (7%) cases. Table 1 shows the gender and treatment disposition of patients treated for non-accidental injuries.

Mechanisms of Non-Accidental Injury. As seen in Table 2, hitting, stabbing, or shooting accounted for most of the assaults (94%), while cutting or poison ingestion was responsible for most failed suicide attempts (86%). Data from the Office of the Medical Examiner revealed that (63%) of immediate deaths from suicide ("dead at scene") were due to firearms, and most (67%) of the suicides who later died at

Carolinas Medical Center also used firearms.

Sociodemographics. As shown in Table 1, men were over six times more likely than women to be admitted for assault-related injuries. Men were also at greater risk for accidental injuries (1.8 times more men than women admitted due to accidents), but were about as likely as women to attempt suicide.

Ages of those injured due to accidental and non-accidental causes are shown in Table 3. Although only 52% of the Charlotte metropolitan area population is aged 10-39,¹⁰ patients aged 10-39 were victims of 83% of assaults (4,064), 86% of suicide attempts (324), and 65% of the accidental injuries (11,163).

The relationship of race to trauma morbidity and mortality is shown in Table 4. Blacks, although representing only 33% of the population, had a higher number of non-fatal accidents (8,492 versus 7,886) than whites who

Table 2. Mechanism of Injury in Assaults and in Suicide Attempts

Mechanism of Injury	Treated at CMC		Dead at scene*	
	Assaults	Suicide Attempts	Assaults	Suicide Attempts
Hit or struck	2,690	0	6	0
Cut or stabbed	1,248	96	14	0
Firearms	628	28	40	35
Burns	1	2	0	0
Falls (Jumps)	3	12	0	1
Corrosive or Poison	23	223	0	7
Miscellaneous	281	14	3	9
Totals	4,874	375	63	52

* Mecklenburg County Medical Examiner's Data

Table 3. Age and Hospital Disposition of Trauma Patients

Age (Years)	Assaults		Suicide Attempts		Accidental Injury	
	Treated/Released	Admitted	Treated/Released	Admitted	Treated/Released	Admitted
Less than 1	11	3	0	0	220	18
1-9	101	5	1	0	2,018	191
10-19	618	92	51	21	2,486	311
20-29	1,676	298	113	38	4,414	503
30-39	1,134	246	63	38	3,021	428
40-49	377	86	21	15	1,383	207
50-59	115	24	2	4	644	139
60-69	51	10	4	2	405	130
70-79	15	3	1	0	237	122
80-89	7	1	0	1	114	74
90-99	1	0	0	0	22	12
>100	0	0	0	0	3	1
Totals	4,106	768	256	119	14,967	2,136

account for 61% of the population. When adjusted for population, this represents a two-fold greater rate in blacks than in whites. The relative incidence of non-fatal assaults (3,252 versus 1,425) was fourfold higher in blacks than would be expected from their proportion of the population. In contrast, numbers of non-fatal suicides (141 in blacks and 212 in whites) more nearly reflect the racial distribution of the county although there is still an excess proportional rate of suicide in African-Americans.

The employment category of patients treated for injuries at Carolinas Medical during the study period was used as an approximate measure of their socioeconomic status. These data

are shown in Table 5. Because CMC is the primary institutional health provider for the indigent and uninsured in Mecklenburg County, the frequency distribution of categories is somewhat biased. Nevertheless, the differences between accidental and non-accidental injuries according to different employment categories is interesting. Sixty-seven percent of assaults (3,265), 65% of suicide attempts (242), and 43% of accidental injuries (7,035) occurred in unskilled or unemployed workers. Furthermore, students and children (those less than 19 years of age, and high school or college students) accounted for 10% of assault victims (493), 11% of suicide attempts (41), and 25% of accidental injuries (4,284).

Blood Alcohol Levels. Blood alcohol concentration was routinely measured in all severely injured, multiple trauma patients as well as in those with clinically altered levels of consciousness. Blood alcohol levels were obtained in 657 (13.5%) patients treated for assault-related injuries; of these, 531 (81%) were positive for alcohol and 416 (63%) were legally intoxicated (blood alcohol of 100mg/dL or greater). Blood alcohol level was measured in 117 (31%) of suicide attempts; the blood of 76 contained alcohol and 62 of the 117 (53%) were legally intoxicated.

Hospital Course. A total of 887 patients were admitted because of non-accidental trauma. An additional 25 patients died in the Emergency Department before admission. The average hospital stay was five days for the 861 survivors and 10.8 days for the 26 who died in the hospital after admission. One hundred sixty-nine patients (19% of those hospitalized) stayed longer than seven days. Approximately half of the patients admitted due to assaults and suicides (446 of 887) required surgery, and 43% (382 out of 887) required urgent operation (within 24 hours of admission).

Survivors of assaults were hospitalized an average of 4.9 days and those assault victims who subsequently died were hospitalized for an average of 14.4 days. In contrast, the hospital stay of attempted suicides averaged 6.2 days and of

Table 4. Morbidity and Mortality of Trauma Patients by Race

Race	Number of Assaults		Number of Suicide Attempts		Number of Accidents	
	Non-Fatal	Fatal	Non-Fatal	Fatal	Non-Fatal	Fatal
White (61%)*	1,425 (29%)	11 (29%)	212 (59%)	9 (69%)	7,886 (46%)	57 (68%)
Black (33%)*	3,252 (67%)	23 (60%)	141 (39%)	3 (23%)	8,492 (50%)	19 (23%)
Native American (<1%)*	3 (<1%)	0	0	0	9 (<1%)	0
Hispanic (1.3%)*	0	0	0	0	5 (<1%)	0
Asian (3.4%)*	0	0	0	0	4 (<1%)	0
Unknown	156 (3%)	4 (11%)	9 (2%)	1 (8%)	623 (4%)	8 (10%)
Totals	4,836	38	362	13	17,019	84

* Percent of population of Mecklenburg County

Table 5. Occupational Status of Trauma Patients by Type of Injury

Occupation	Number Assaulted	Number of Suicide Attempts	Number of Accidents
Skilled Labor	384 (8%)	24 (6%)	1,920 (11%)
Clerical/Sales	142 (3%)	12 (3%)	700 (4%)
Agriculture/Fishing	3 (<1%)	0	16 (<1%)
Professional/Managerial/Administrative/Technical	119 (2%)	10 (3%)	901 (5%)
Homemaker/Housewife	5 (<1%)	3 (1%)	109 (1%)
Police/Fire	21 (<1%)	0	89 (1%)
Student/Child	493 (10%)	41 (11%)	4,284 (25%)
Military	1 (<1%)	0	11 (<1%)
Retired	45 (1%)	5 (1%)	720 (4%)
Disabled	49 (1%)	8 (2%)	311 (2%)
Unskilled Labor	1,462 (30%)	84 (22%)	4,663 (27%)
Unemployed	1,803 (37%)	158 (42%)	2,642 (15%)
Undetermined	347 (7%)	30 (8%)	737 (4%)
Totals:	4,874 (100%)	375 (100%)	17,103 (100%)

"successful" suicides, 1.1 days. Ninety-five percent (712 out of 749) of assault survivors and 69% (77 out of 112) of suicide attempt survivors were eventually discharged to home care.

Hospital Charges and Payments. Hospital charges for the 5,249 patients treated for non-accidental trauma totaled just over \$8.1 million (Table 6A). Just over \$1.4 million (18% of charges) received within six months after the termination of this study (March 30, 1991) were paid by patients themselves or their private insurance (Table 6B). Slightly less than \$3 million (37%) was paid by federal, state, and local government sources. Twenty-one percent of total hospital charges were written off as bad debt, and 17% as miscellaneous adjustments, most because of contractual arrangements with Mecklenburg County, which reimburses CMC on a per diem basis. A small part of miscellaneous adjustments were due to employee discounts, CHAMPUS, Medicare, and Workers' Compensation adjustments to bills. There remained a balance of 7% of total charges, of which 4% represented unpaid bills. Less than 1% of the total number of accounts, amounting to \$269,295 (3% of total hospital charges), remained unbilled as of March 30, 1991. Taking into consid-

eration all payments, adjustments, bad debt and unbilled accounts, 96% of hospital charges had been accounted for six months following the close of the study.

Comments

This study presents prospectively gathered data on non-accidental trauma requiring medical care at the Carolinas Medical Center during a one-year period from October 1, 1989 to September 30, 1990. The prospective methodology has improved the accu-

racy and completeness of the data, but our study undoubtedly suffers from some of the general shortcomings of research on intentional injury, especially the difficulty in accurately ascertaining intent. Some mechanisms of injury, such as suicide by single motor vehicle crashes, may be overlooked and lead to an underestimation of non-accidental injury. Our data therefore represent, at best, a low estimate of incidence and cost.

Table 6A. Hospital Charges for Non-accidental Trauma Patients

	Assaults	Suicides
Admitted	\$6,293,139	\$1,028,610
Treated & Released	\$755,463	\$68,518

Table 6B. Sources of Reimbursement for Accidental and Non-accidental Trauma

Source	Accidental Injury	Non-Accidental Injury
Patient Payments	\$494,661 (2%)	\$39,365 (<1%)
Insurance Payments	\$12,570,500 (46%)	\$1,405,530 (17%)
Federal Payments	\$3,816,192 (14%)	\$228,368 (3%)
State Payments	\$3,694,155 (14%)	\$2,118,111 (26%)
City/County Payments	\$592,364 (2%)	\$638,201 (8%)
Miscellaneous Adjustments	\$1,605,910 (6%)	\$1,416,672 (17%)
Bad Debt Write-off	\$3,146,904 (12%)	\$1,700,345 (21%)
Balance Remaining	\$1,393,635 (5%)	\$599,138 (7%)
Total Charges	\$27,314,321 (100%)	\$8,145,730 (100%)

Another potential shortcoming is the lack of data on non-accidental injuries treated at other area hospitals. The interhospital agreement mandating that all penetrating trauma be treated at CMC ensures that all serious stab or gunshot wounds were included in our surveillance system. We believe, therefore, that few data have been lost (an assumption supported by Mecklenburg County Medical Examiner's records which show only two deaths due to assault or suicide at other area hospitals, while 51 assault or suicide deaths occurred at CMC during the one-year study period).

We were only partially successful in assessing the role of alcohol in non-accidental injury. We would have preferred testing of all victims of assault and suicide attempt, but that was not feasible. However, our data from the most severely injured show that alcohol is a significant factor in severe assaults (63% of those tested were legally intoxicated) and in suicide attempts (53% of those tested were legally intoxicated).

In evaluating the socioeconomic implications of our findings, we must remember that hospital charges do not nearly reflect the total costs to society because they exclude lost earnings, rehabilitation costs, and physicians' fees. Even so, it is important to note that assaults, suicides, and suicide attempts

in our urban southeastern community generated over \$8 million in hospital charges alone over a one-year period. Only 18% of hospital charges were paid by the patients or private insurers. The remainder was financed by community resources: government sources (37%), miscellaneous adjustments (17%), and more than 28% unbilled, unrecovered, or written off to bad debt six months after the close of this study.

Our study confirms the disproportionate effects of violence and suicide on the young, on males and on blacks. Mecklenburg County's population is 52% female and 48% male; the racial composition is 61% white, 33% black, and 6% other (Asian, Hispanic, Native American).^{8,11} In the Charlotte metropolitan area, whites outnumber blacks almost 2:1, but black non-accidental trauma victims outnumber whites 2:1. Furthermore, the data demonstrate that men were twice as likely to be treated and released and nearly seven times more likely to be admitted for assault-related injuries than women.

We found that victims of non-accidental trauma were less likely to be gainfully employed than the general population. Thirty-seven percent of those suffering non-accidental injury were unemployed as compared to 3.1% of the Charlotte metropolitan area population during the study period.¹² It is, therefore, not surprising that only 9%

(496 out of 5,249) of patients suffering non-accidental injury were covered by private insurance. It is important to note that the intentionally injured population does not simply reflect the overall patient population treated at this institution. During the period of our study, payment for services to those treated for *accidental* injury came from patient and private insurance in 48% of cases, from government sources in 30%, and were unrecovered, unbilled, or written off to bad debt in 17% (Table 6).

Intentional injury due to assaults and suicide attempts is not only a serious, unresolved social and legal problem of our society, but it is also a substantial financial drain for local communities and the nation. Only an awareness of the medical costs of non-accidental trauma will allow society to address the issues of prevention and management as well as cost containment and resource allocation at both a local and national level. □

Acknowledgments

We are greatly indebted to Mary Peach for computer programming, to the Emergency Department staff for collecting cause-of-injury data, to the Office of the Mecklenburg County Medical Examiner for providing mortality data, and to Betty-Sue Casta for preparation of the manuscript.

References

- 1 National Safety Council. Accident Facts 1989:4-13.
- 2 Trunkey D. Issues in trauma care. In: JH David, ed., *Clinical Surgery*. St. Louis: CV Mosby, 1987:2759.
- 3 Guyer B, Gallagher SS, Azzara CV. Injury surveillance - a state perspective. *Public Health reports* 1985;100:589.
- 4 Luna GK, Kendall K, Pilcher S, et al. The medical and social impact of non-accidental injury. *Arch Surg* 1988;123:825-7.
- 5 Sniezek JE, Finklea JF, Graitcer PL. Injury coding and hospital discharge data. *JAMA* 1989;262:2270-2.
- 6 American Medical Association Council on Scientific Affairs. Firearm injuries and deaths: a critical public health issue. *Public Health Reports* 1989;104:111-20.
- 7 ICD9-CM, 2nd Edition, Vol. I. U.S. Department of Health and Human Services. September, 1980.
- 8 1990 Census of Population and Housing. Summary Tape File 1. Mecklenburg County, NC. North Carolina State Data Center, p. 481.
- 9 Ribbeck BM, Runge JW, Thomason MH, Baker JW. Injury surveillance: a method for recording E Codes for injured emergency department patients. *Ann Emer Med* 1992;21:37-42.
- 10 U.S. Bureau of the Census, 1980 Census of Population, Volume 1, Characteristics of the population, Chapter D, Detailed Population Characteristics, Part 35, North Carolina, Section 1; Oct. 1983; U.S. Government Printing Office, Table 207.
- 11 U. S. Department of Commerce, Bureau of the Census. Statistical Abstracts of the United States, 108th edition, 1988, p. 32.
- 12 U.S. Department of Labor, Bureau of Labor Statistics. Employment and Earnings, December 1989 - November 1990.

We've been defending doctors since these were the state of the art.



Turn of the century trephine for cranial surgery and tonsillotome for removing tonsils.

These instruments were the best available at the turn of the century. So was our professional liability coverage for doctors. In fact, we pioneered the concept of professional protection in 1899 and have been providing this important service exclusively to doctors ever since.

You can be sure we'll always offer the most complete professional liability coverage you can carry. Plus the personal attention and claims prevention assistance you deserve. For more information about Medical Protective coverage, contact your Medical Protective Company general agent.

THE
MEDICAL PROTECTIVE COMPANY
FORT WAYNE, INDIANA



Stuart Mitchelson
Suite 165, 11121 Carmel Commons Boulevard, Charlotte, NC 28226, (704) 541-8020 or (704) 541-8021, (800) 633-2285
Robert Dowdy, J. Michael Luther
Suite 230, 2000 Regency Parkway, Cary, NC 27511, (919) 467-8370, (800) 633-2285

Maternal Mortality in North Carolina

Margaret A. Harper, M.D., F.A.C.O.G.

The North Carolina Medical Society established a maternal mortality committee in 1945. From 1945 through 1991, the committee was chaired by only three persons: Dr. Frank Lock, followed by Dr. James F. Donnelly (1950 to 1962), and Dr. Joseph May for the next three decades until his retirement from the Bowman Gray School of Medicine in 1991. These three committee chairs compiled a very laudable history.

Maternal mortality statistics for North Carolina have been published periodically in state and national journals and compared with regional and national rates. This aspect of our state's public health history has been exceptionally well chronicled, and I daresay more is known about maternal death rates in North Carolina than in any other state.

The Fruits of the Committee's Labor

Dr. May made many insightful interpretations of trends in the causes of maternal deaths. For example, he noted the decline in deaths due to infection after abortion was made legal, and the increase in deaths due to hemorrhage from ectopic pregnancy that paralleled the increase in sexually transmitted diseases. He also worked with the state's

Department of Health and Vital Statistics to develop a method of enhanced surveillance by matching maternal death certificates with birth and fetal death certificates. This increased the number of recognized maternal deaths in the state by as much as 30% each year and has been adopted by the Centers for Disease Control for use by other states.

An important part of the committee's work has always been to collect additional information when that on the death certificate is insufficient for classifying the death. All information is strictly confidential and any identifying information is destroyed. We have always and will continue to greatly appreciate the cooperation of the physicians who answer our queries. Their support of the committee's efforts helps to improve the health of all North Carolina mothers.

Maternal Deaths in 1992

In 1992, there were 28 maternal deaths in North Carolina. Twelve of these were directly related to pregnancy including four deaths from infection (one related to criminal abortion). Three deaths were ascribed to postpartum cardiomyopathy. There were two deaths attributed to amniotic fluid embolism. There was one death from eclampsia in a teenager who had concealed her pregnancy. We identified no deaths due to ectopic pregnancy. Of interest, two postmortem cesarean sections were

performed on women who received cardiopulmonary resuscitation after cardiac arrest outside the hospital. Neither neonate survived. The deaths of two pregnant women from cocaine use were classified as unrelated to pregnancy. We do not know whether the cocaine was used in an attempt to induce delivery. Two pregnant women died from gunshot wounds.

The Present and the Future

Maternal mortality statistics are important to all health care providers. Few events are more tragic than the death of a pregnant woman or new mother. Maternal death statistics indicate not only how well we serve the young women of our state, but also how social phenomena such as domestic violence and street drugs impact those same citizens. For instance, I anticipate that in the future we will see more maternal deaths related to AIDS.

Overall, the maternal death rate in our state has declined more than 90% since 1945. This is an excellent record; to preserve it in the future we must continue to address the problems of access to care and the ongoing disparity between maternal death rates of whites and non-whites. As a state, we must also seriously consider whether gun control, education regarding the prevention of AIDS and sexually transmitted diseases, and access to contraception and safe abortion would further decrease our maternal death rate. □

Chair, Committee on Maternal Health,
North Carolina State Medical Society
222 N. Person Street, Raleigh 27611.

Health Watch

VOLUME 54 / NUMBER 11 / NOVEMBER 1993

Cancer

CANCER AWARENESS

What is cancer?

Cancer is the name for a group of more than 100 diseases in which there is an uncontrolled growth and spread of abnormal body cells that destroy body tissue rather than build and repair it. In the majority of cancers, these cells form a mass of tissue known as a malignant tumor. Early in medical history, physicians noticed that when a tumor is cut open, there is a central area from which channels spread, like arms. This looks something like a crab—hence use of the word “cancer,” Latin for crab. These tumors are also referred to as “neoplasms,” from the Greek, “new growth.”



Non-cancerous tumors are called benign. These tumors may grow, but they do not multiply and spread. Such growths can usually be completely removed, in which case they do not recur. The

danger with cancerous—malignant—tumors is that parts often break loose from the original malignancy and are carried away by blood and body fluids to distant parts of the body through a process termed metastasis. Wherever these happen to settle, new tumors may develop that also grow and invade nearby tissue.

There are also cancers of the blood—leukemia—and the lymphatic system—lymphoma. In these types of cancer, there is rapid and repeated reproduction of cells, but no swelling or tumor. While these cancers are not as common as those that produce tumors, they can be just as dangerous and life threatening.

As cancer spreads, normal cells, tissues and organs are overwhelmed and unable to carry out their assigned tasks: lungs can no longer effectively move oxygen into the blood, the liver can no longer properly cleanse the blood and the digestive system can no longer absorb needed nutrients. The individual slowly dies, starved, suffocated or poisoned to death from within.

With few exceptions, cancer is a chronic, constant illness but, if detected before it has an opportunity to spread, the cancer may often be removed or destroyed, halting the process. It is also encouraging that even when some spreading has occurred, medical treatment may still reverse or slow

North Carolina Medical Society, PO Box 27167, Raleigh, NC 27611.

the process, possibly to the point where the individual is able to live a full and productive life. The key, however, remains in early detection and prompt medical treatment.

Causes and Prevention

Studies suggest that up to 80 percent of all cancer cases are due to environmental causes like diet, lifestyle and specific habits such as smoking. All of these involve exposure to cancer-causing agents called carcinogens. Heredity and genetic makeup of an individual—things we can do nothing about—are considered the primary cause of only a small percentage of cancer cases.

Of environmental risk factors—the things we can do something about—smoking definitely tops the list. People who smoke have a ten times greater chance of getting cancer than people who don't smoke. Overexposure to the ultraviolet rays of the sun, too much fat in the diet, excessive alcohol consumption, and some chemicals such as asbestos are other risk factors that should be avoided.

Many cancers are thought to be caused by a two-stage process involving exposure to initiators, substances that "pave the way" for cancer, and subsequent exposure to promoters, substances that actually cause cancer. For example, people who both drink alcoholic beverages and smoke multiply their chances of developing cancer tremendously.

On the other hand, foods high in fiber, low in fat and low enough in calories to keep you trim and fit may help you avoid cancer. Include fresh fruits and vegetables, whole grains and cereals in your diet.

Even though you may be at greater risk for developing cancer because of factors you literally have no control over, your inherited genetic makeup, for example, you can reduce your chances of developing cancer. Maintain a healthy diet, give up smoking and heavy drinking, and avoid too much sunlight, particularly if you are fair skinned. Simply put, the more damage you allow environmental factors to do to you during your life, and the less you do to protect yourself, the greater your chance of developing cancer.

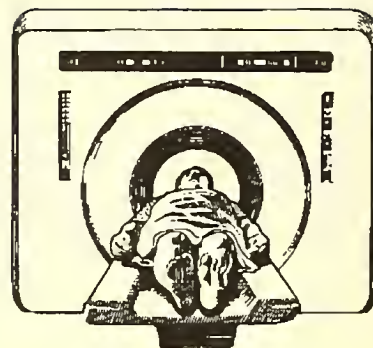
Screening and Diagnosis

You should have regular physical examinations regardless of your age, sex, or lack of symptoms. During such exams, physicians can sometimes identify cancer before patients are able to detect its presence. Many doctors incorporate cancer screening into a patient's regular exams. This is often the first step toward diagnosis.

Diagnosis is the term applied to a physician's determination as to whether or not disease is present and, if so, its nature and extent. There is a wide range of techniques and medical equipment that your physician may use during a physical exam to screen for or diagnose cancer.

Physical exam generally start with questions about your general well-being and any specific complaints or observations you may have regarding your health. Your physician

may also recommend certain tests. For women, a Pap test is one example. This is a simple, quick, painless procedure that can detect cervical cancer. The test is very useful because it can identify cells that indicate uterine cancer may develop.



Once a woman reaches 18 years of age or becomes sexually active, she should have annual Pap tests until she has had three or more normal ones. The woman and her physician should discuss how often she should have them thereafter.

For men, prostate cancer is second in the number of new cancer cases and deaths. To screen for this disease, your physician will have you take an annual rectal exam and the prostatic specific antigen blood test, especially if you're over 50 years of age.

Colorectal cancers occur about as often among men and women and these types of cancers are screened for using tests that detect blood in your stool—an early sign of the disease. In addition to blood and urine tests for all sorts of cancers, there are special instruments that a physician may use to check the rectum and lower colon for these diseases, and others for checking vocal cords, the back of the nose, even the lungs.

Highly sophisticated scanners such as Computerized Tomography (CT), Magnetic Resonance Imaging (MRI) and ultrasound can provide your doctor with valuable information when deciding on the best way to handle your treatment. They are replacing other techniques that are often more lengthy, complicated, and unpleasant, but they are expensive—each one of these machines can cost hundreds of thousands of dollars each year to operate and millions to buy.

With your own heightened awareness and your physician's screening and diagnosing techniques, medical equipment and tests, there's a good chance of beginning treatment at an early, more curable stage.

Finding Your Own Cancer

There exists today, despite great medical advances, a negative fearful attitude of society toward cancer. Even though the fear of cancer is present to some degree in all of us, early detection and treatment should become everyone's objective.

Early detection calls for a continuous day-by-day process of self observation and heightened awareness. It is up to each and every one of us to shed our "not me" attitudes and adopt a "me too" vigilance for early cancer detection.

There are methods of self examination for certain kinds of cancer. The most important for women is monthly self

examination of the breast. The most important for men is monthly self examination of the testicles. These techniques are easy to learn, take little time and, conducted regularly, can help find cancer when it is most curable. Your doctor can show you how.

In addition to conducting regular self exams, be alert for the seven warning signs of cancer: change in bowel or bladder habits, a sore that does not heal, unusual bleeding or discharge, thickening or lump in breast or elsewhere, indigestion or difficulty in swallowing, obvious change in wart or mole, or nagging cough or hoarseness. If you have any of these symptoms for more than two weeks, see your doctor.

Treatment

One out of four of us will develop cancer. At some point, cancer strikes three out of four families. Sooner or later, all of us will meet the disease, in ourselves or in our dearest relatives and friends.

Fortunately, many cancers, including those of the breast, cervix, rectum and skin, even those of the bowel and bladder, can be detected early. If they are treated promptly, before malignant cells have spread very far, they can often be completely cured.

There is no single, simple cure-all for the more than one hundred diseases encompassed by the fearful word cancer, nor is there any one set of cancer treatments for a particular cancer type. Methods vary depending on the individual, the physician and the type and exact extent of the disease. Some cancers are best treated by surgical removal. Others are better tackled by radiotherapy or chemotherapy.

In surgical approaches, the tumor and nearby tissue that may contain cancer cells are removed. Since cancer can spread further than the removable surrounding tissue, surgery is often followed by radiation or chemical therapy. In some cases, radiation or cancer drugs may be used as the primary treatment.

Radiation may be applied externally by the use of X-ray machines, or very small radioactive rods may be placed in or near the cancer. Cancer drugs prevent cell division and are effective because cancer cells often divide rapidly. With any approach, however, the physician has to be careful to balance the treatment of cancer against the damage it can cause.

Existing methods of cancer treatment are constantly being improved and new and innovative approaches to cancer treatment continue to be researched. Immunotherapy—improving the body's own defense system's ability to detect and destroy the disease—is one area of research that holds some promise.

Medicine has come a long way in curing cancer by using surgery, radiotherapy and chemotherapy. Therapy is less damaging than before, drugs that will kill certain kinds of cancer cells are more effective and we know a good deal more about the usefulness of surgery.

Specific Cancers

As mentioned earlier there are more than 100 types of cancer known. Below are descriptions of certain cancers where self detection methods can lead to early discovery and thus a greater chance of cure.

Testicular Cancer

Cancer of the testes—the male reproductive glands—is not as common as those of the breast, lung, or colorectum but is equally important because it occurs mostly in young men between the ages of 15 and 35. Men whose testes never descended into the scrotum—the sack containing the testes—or whose testes descended after the age of six have the greatest risk of developing the disease.

Monthly testicular self examination is one way men can identify this disease in an early and treatable stage. The best time for a self examination is right after a warm bath or shower. The testes can be checked more easily when the scrotum is relaxed. Feel for lumps or swelling by rolling each testicle between the thumb and fingers of both hands.

A lump or hard mass about the size of a pea or a heavy feeling in the scrotum are among the early warning signs and symptoms of testicular cancer. In most cases, the lump is found on the front or side of the testicle. The lump or swelling may not be painful, but it is important to seek medical attention if you identify any of the signs or symptoms. There are few growths of the testes that are not cancerous.

Breast Cancer

The best way to detect breast cancer in its early state by conducting a monthly breast self examination (BSE). The best time for BSE is 7 to 10 days following the beginning of each menstrual period. If you're past menopause, pick a day that's easy to remember each month to conduct the exam. A good way to learn how best to check your breasts is to ask your doctor for a breast exam as part of an office visit. Knowing how your breasts normally feel makes it easier to notice changes early, when treatment is most effective.

Check for a lump or thickening of the breast where there was none before. If you notice something different in one breast, check to see if the other breast is the same. If it is, it's probably natural, but, if you're unsure, have your doctor check it. A change in breast shape or discharge from the nipple should also be checked by a physician.

Skin Cancer

Cancer of the skin is the most common of all cancers. Repeated overexposure to the ultraviolet rays of the sun, such as is experienced while sunbathing, is the chief cause in most of the over 300,000 new cases that occur each year. There are three main types, classified according to the cells involved—

basal cell, squamous cell and melanoma.

You should be alert to any unusual skin condition and have it checked by a physician. This is especially important in case of a change in the size or color of an existing mole or other darkly pigmented growth. A mole that begins to change rapidly should be examined by a medical doctor promptly

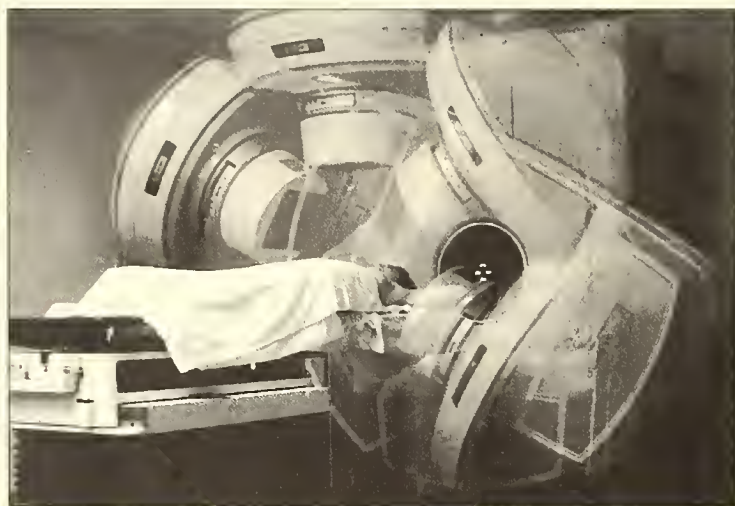
Colorectal Cancer

Colorectal cancer is the third most deadly of the cancers, it is also one of the most curable if it is detected early. The colon is the last 5 to 6 feet of the intestine. The last 5 or 6 inches of

the colon is the rectum. After food is digested, the solid waste that remains travels through the colon and rectum to the anus, where it is passed out of the body.

About equal numbers of men and women suffer from colorectal cancer, but 90 percent of these cancers occur in people over age 40. If you have had ulcers in the colon, you have a greater risk for developing colorectal cancer. Rectal bleeding that appears in the stool, constipation, diarrhea or alternating bouts with both, and an increase in intestinal gas are symptoms of colorectal cancer. If you have any of these conditions for more than two weeks, you should see your physician. □

Breast-Conservation Treatment



AT LEAST ONE-THIRD OF ALL BREAST CANCER PATIENTS COULD HAVE LUMPECTOMY FOLLOWED BY RADIATION THERAPY

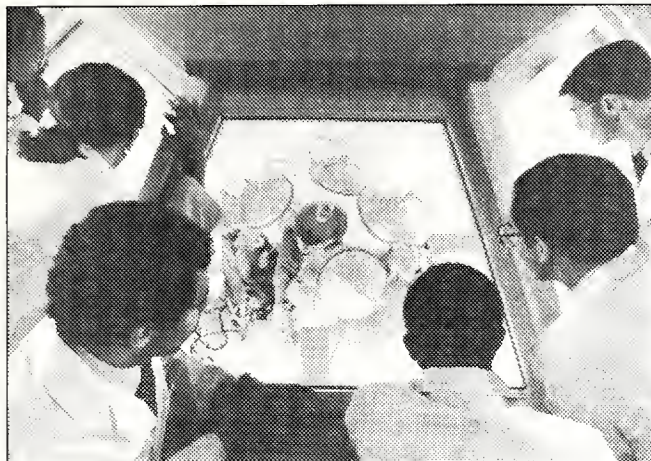
The American Cancer Society, the American College of Surgeons and the American College of Radiology have agreed that women whose early breast cancer was detected by mammography are candidates for breast-saving treatment. According to new standards, women with small lumps, those with tumors as large as two inches, and even some women with positive nodes may be candidates for this treatment.

Stage for stage, patients treated in this manner have the same longevity and the same freedom from local recurrence as those treated with mastectomy.

For copies of the standards please contact Keri Sperry, American College of Radiology, 1891 Preston White Drive, Reston, VA 22091.



AN ARMY SCHOLARSHIP COULD HELP YOU THROUGH MEDICAL SCHOOL



The U.S. Army Health Professions Scholarship Program offers a unique opportunity for financial support to medical or osteopathy students. Financial support includes tuition, books, and other expenses required in a particular course.

For information concerning eligibility, pay, service obligation and application procedure, contact the Army Medical Department Personnel Counselor: Call Collect 804-771-2354

ARMY MEDICINE. BE ALL YOU CAN BE.®

Instructions for Authors

Manuscript Preparation

Authors should prepare papers according to the "Uniform Requirements for Manuscripts Submitted to Biomedical Journals" (N Eng J Med 1991;324:424-8) with these exceptions: 1) no abstract is needed; 2) no running title is needed; and 3) measurements must be reported in metric units; use of the International System of Units (SI) is optional.

Text (including Letters to the Editor) should be typed with one-inch margins and double-spaced. Title page should include address, and phone and fax numbers of the corresponding author. Submit two copies or a cover letter and a 3 1/2- or 5 1/4-inch computer disc with text written in MS DOS compatible format (WordPerfect, Microsoft Word, Displaywrite, or ASCII).

Submit illustrations, in duplicate, in the form of color 35mm slides or glossy photographs, or as black-and-white glossy photographs. Label them with author's name, note their position in the text, and indicate image orientation, if necessary. *Do not write on the backs of prints.* Type legends separately. Tables should be typed, double-spaced, one to a page. Tables must have titles and consecutive Arabic numbers.

Minimize references (no more than 15, preferably 10 or fewer). The "Uniform Requirements" cited above contain the format for references. Authors are responsible for the accuracy and pertinence of all citations. Avoid abbreviations entirely if possible, or keep them to a minimum. When used, completely define abbreviations at the first usage in the text.

Manuscript Editing

A medically qualified editor reads all manuscripts, and most are also reviewed by members of the North Carolina Medical Society. Manuscripts are received with the understanding that they are not under consideration for publication elsewhere. Decisions to publish or not are made by the editors, advised by peer reviewers.

We encourage a relatively informal writing style since we believe this improves communication. Imagine yourself talking with your unseen audience—as long as this doesn't lead you to scientific or linguistic inaccuracy. Be brief, clear, simple, and precise.

We edit accepted manuscripts for clarity, style, and conciseness. Except for letters, authors receive a copy of the edited manuscript for approval before publication.

Authors retain copyright to articles published in the *North Carolina Medical Journal*, but the North Carolina Medical Society copyrights the contents of each issue. Requests for permission to reprint all or part of an article must be submitted in writing to the address below and negotiated with the author and editor jointly. Reprinted material must carry a credit line identifying that it appeared in the *North Carolina Medical Journal*. Address manuscripts and correspondence to:

Editor, North Carolina Medical Journal

Box 3910, DUMC

Durham, NC 27710

Telephone 919/286-6410 Fax 919/286-9219

Is There a *Right* to Health Care?

Rosemarie Tong, Ph.D.

One has only to skim through the *New Republic*, *The Atlantic Monthly*, *The National Enquirer*, *Medical Economics*, or *JAMA* to realize that health care is a major issue for our nation. Almost everyone is convinced that we have to keep down the cost of health care, even as we struggle to keep up its quality. Moreover, almost everyone is also convinced that part of the solution is, paradoxically, to *increase* people's access to health care. Currently, there are untallied numbers of underinsured people as well as approximately 37 million uninsured people in the United States. When these people need medical treatment, many of them come to the emergency rooms of our hospitals. Emergency room care (or hospital admission for disease out of control) makes far less human and economic sense than health care that is delivered in a timely manner by a physician in the office, usually before major damage has been done to the patient's health and a lot of people's pocketbooks.

Increasingly, people from all segments of our society express concern that, in contrast to other industrialized western nations, the United States does not provide universal health care. "Enough is enough," they say. "Everyone in our society *ought* to be entitled to health care, regardless of their financial situation." But it is not obvious what justifies this assertion. Is it some

sort of *moral* justification according to which everyone has an equal right to health care simply because they are a person — a human being with a body and a mind subject to the vicissitudes of life? Or is it some sort of *political* justification according to which a society that endorses justice and equality must offer health care to all of its citizens, if it offers it to any of them? Or is it some sort of *economic* justification according to which providing adequate health care insurance to every American will save billions of dollars in the long run, eliminating the need to shift the medical costs of uninsured or underinsured patients onto the bills of adequately insured patients? Or is it a sort of *personal* justification according to which our consciences will not let us watch others suffer and even die while we go unscathed?

Granting Rights Is Serious Business

I suspect that some combination of all of the above justifications underlies the call for a right to health care. Yet I am not certain that everyone who demands a *right* to health care understands how serious "rights" talk is. In the first place, saying that an individual has a right to health care means that he or she is *entitled* to it. Simply pointing out that an individual would benefit from health care, or that health care is a good thing to have does not capture the concept of an entitlement. Rights-holders are not supplicants pleading for a favor; they are claimants demanding their due.

Secondly, if an individual has a right to health care, and if that right is violated, we cannot dismiss it as merely unfortunate that some man, woman, or child has to go without necessary medical treatment. Rather, we must insist that individuals who are denied health care have been *wronged* by those who failed to honor their rights. And wronged individuals deserve not sympathy, but compensation.

Thirdly, if an individual has a right to health care, then you and I (or some collective organization such as physicians, society, the government) have an obligation to make health care available to that individual. Moreover, if such an obligation exists, then there are good reasons for making sure that you and I (or physicians, society, the government) fulfill this obligation. After all, unenforceable rights are about as good as toothless tigers or fangless rattlers.¹

The Arguments Against a Right to Health Care

Opponents of the right to health care argue that it is too difficult a pill for our society to swallow. The first criticism is that the right to health care is simply a claim to physicians' services, and that no one ever has a right to the labor of a physician except by voluntary agreement. Patients in need certainly have the right to seek medical treatment and to purchase it from willing providers. No one may interfere with them. But the mere existence of a *need* or a *desire* for health care does not create a *right* to

Professor Tong is Thatcher Professor in Philosophy and Medical Humanities at Davidson College, P.O. Box 1719, Davidson 28036.

it. To be sure, physicians may choose to care for patients for "free" as a matter of charity. Physicians who treat all comers, regardless of ability to pay, do more than they have to do. They are saints or heroes. To think otherwise is to deprive physicians of their autonomy. It is to demand that they do something for nothing to the point of indenturing themselves to the sick.

“...the mere
existence of
a *need* or a
desire for
health care
does not
create a *right*
to it.”

A second criticism focuses on the confusion surrounding the content of a right to health care. Is it a right to basic care? Or is it a right to every service (including in vitro fertilization, heart-lung transplants, breast augmentation) that physicians are able to provide? Did 86 year-old Helga Wanglie, in an irreversible vegetative state (see *NC Med J* 1993;54:386-91), have a right to remain on life-sustaining machines even though her physicians believed such treatment to be futile? As Dr. Mark Siegler sees it:

Most people would agree that a broken leg, open heart surgery, and a polio epidemic are health problems that are appropriately addressed by clinical medicine. However, it is probable that neither the medical profession nor the rest of society could agree on whether cosmetic surgery, anxiety, elective abortion, poverty, and environmental pollution were medical matters from which treatment should be guaranteed.²

Siegler says further that a surprising number of people equate the right to

health care with a right to good health; and if it is difficult to deliver good *health care*, it is impossible to deliver good *health*. Medicine is not an exact science, and patients are not always compliant. Consider the World Health Organization's definition of health as "a state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity."³ There is no way that we can guarantee people, as a matter of right, that kind of health.

A third criticism is that a right to health care will substitute a legalistic, "contractual" model of medicine for the traditional "covenantal" model,² and transform physicians into mere technicians servicing health care consumers. Some critics say that insisting on a right to health care threatens the very conditions that make the practice of *good* medicine possible. In particular, they worry about encouraging an adversarial vision of medicine according to which all demands by patients must be satisfied by physicians or else. "I have a right to medical treatment x, y or z. Give it to me, or I'll sue you."

A fourth, and related criticism, suggests that a right to health care would lead to a certain meanspiritedness in society, to attacks on people who do not take "good care" of themselves but then demand, as a matter of right, that others bear the burden of their health care. People might become health care police, spying on their neighbors to make sure they *deserve* their right to health care. "OK, Sam, you may have had a right to health care, but you forfeited that right when you neglected to take care of yourself." Society would have to wrestle with questions such as "Do smokers have the same right to health care as non-smokers?" Even if smokers should not automatically be ineligible for heart-lung transplants, for example, some think that smokers should pay more for their health care insurance and possibly also for their health care treatment. Elizabeth M. Whelan of the American Council on Science and Health comments that:

We cannot talk seriously about health care reform without a commitment to identifying the

extraordinarily high costs of treating preventable diseases. Cigarette smoking causes nearly 500,000 of the estimated one million premature deaths annually. All of us absorb the more than \$35 billion in costs associated with treating smokers who, at a relatively young age, develop cancers, pulmonary disease and heart ailments. Smokers should be assessed a "user's fee" (not a general tax that could be hijacked for other purposes) to compensate the system, private or public, for the inevitable costs of treating smoking-related diseases.⁴

This extreme emphasis on individual responsibility for health may stem from a defective, "market theory" of justice that overlooks the social causes of disease in its stampede to blame the victims. Rather than simply pointing our fingers at smokers and asking them for compensation, we should look beyond the individual to the social system that encourages smoking, and demand compensation in extra tax dollars from those primarily responsible for the production of such health hazards – the tobacco manufacturers.⁵

“Rather than simply
pointing our fingers at
smokers and asking
them for compensation,
we should ... demand
compensation in extra
tax dollars from those
primarily responsible for
the production of such
health hazards - the
tobacco
manufacturers.”

A fifth, and final criticism states that, even though health care is a very important social good, it is not necessarily the *summum bonum*, the Supreme Good. Education, transportation, housing, legal assistance, are examples of

“As a society, we lack a good sense of the proper balance among our various needs.... It is not too soon to begin attempting to develop one.”

other goods sought and needed by members of our society. We cannot give all of such goods the status of rights; society simply cannot afford to pay for them all. Comments Daniel Callahan, director of the Hastings Center:

[No matter how] adequate the general health of a society, there will be a desire for an even higher standard. That has been the history of medical progress and public attitudes, powerfully abetted by the ordinarily valid belief of scientists that they can, in fact, effect improvement if given sufficient resources. That there will always be cases along the ragged edge also means that some people will not have the health benefits that others have, and there will be social and moral pressures to lessen that disparity. Both a general desire for better health – regardless of how good the present health already is – and pressures to eliminate the ragged edges, then, will place constant pressure on the health care system.

The only effective way to cope with those pressures is by keeping before the public eye all of our social needs. A society with ever-improving health but inadequate parks and schools will not be a well-functioning society. Healthy but unemployed people will not find their lives satisfactory nor will the economy be in good shape if unemployment is too high. As a society, we lack a good sense of the proper balance among our various needs, some kind of

integrated and coherent picture within which to forge public policy. It is not too soon to begin attempting to develop one. We need it to prevent the demand for better health, usually insistent, from increasing its already undue power.⁶

Health Care Needs or Wants?

No matter on which side of the political fence we stand, one or more of these criticisms of the right to health care is likely to strike a resonant chord inside us. After all, in a consumer society like ours, it is easy to conceive of health care as a commodity; a set of services and goods to be marketed, advertised, and promoted; a set of services and goods that consumers, clients, patients (as we used to call them) can purchase or not purchase at their discretion.

But is health care always or even usually a commodity that we are free to consume or not to consume depending on our appetite for it, our wants, our preferences, our wishes? Or is it instead a need that we cannot help having? Rights-oriented thinkers almost always talk about *needs* for health care as opposed to *wants*, about someone we love who will die without an operation, or whose quality of life will be diminished without medical treatment. Critics of this line of reasoning object that it is too hard to distinguish subjective desires or preferences from objective needs, but rights-oriented thinkers reply: “Be real!” “Imagine,” they say, “how you would react if I asked you, my friend, for \$250. Even if you were a fairly good friend, you would probably ask the reason for my request, and you would certainly react one way if I told you that I *needed* the money for my high blood pressure medications, and quite another way if I told you that I *wanted* the money to get back home to hear some real Chicago jazz played – not just imitation Charlotte stuff” (see Daniels⁷). Rights-oriented thinkers ask us not to be fooled: needs are not always indistinguishable from wants.

Rights-oriented thinkers also insist that some needs are so basic that they generate a very special set of

rights. Not simply the negative rights of non-interference but the positive rights of help in attaining goods and services. Champions of this view argue that health care services and goods differ from ordinary commodities that can be purchased or not. Our diseases and disabilities make offers that we cannot refuse – not if we want to go on living or living well. Furthermore, since the ability to function normally is absolutely essential for equal opportunity in our society, philosopher Norman Daniels insists that health care services are a prerequisite to equal opportunity. We *owe* health care services to each other.⁷ Daniels draws some compelling parallels between education and health care. He claims that social factors like race, class, and family background, as well as biological factors like genetic inheritance, produce special learning needs in particular individuals. To the extent that education provides equality of opportunity, we must make provisions to meet these special educational needs. Since almost identical points can be raised with respect to health care, Daniels concludes that we must also provide for people’s special health care needs.

It is important to stress that, for Daniels, educational and health care needs differ from our other basic needs, such as for food and clothing. Any two individuals probably need approximately the same amount of food to stop their stomachs from growling and the same amount of clothes to stop their bodies from shivering. Yet these same two individuals may have very different educational and health care needs. One may be a quick learner, another slow. Similarly, one may be perfectly healthy, another suffer from multiple sclerosis, diabetes, osteoporosis or Down’s Syndrome. As Daniels sees it, the unequal distribution of our health care and educational needs (and their strategic importance to equality of opportunity) puts these needs in a separate category. Ordinarily, we expect people to purchase food and clothing from their fair-income shares. The costs of food and clothing are affordable for most Americans. Bi-Lo and K-Mart are just down the street from the gourmet

deli and designer jeans store. But education and health care are much more difficult for people to purchase from their fair-income shares. Imagine, for example, that there were no public schools. How many people could afford private school tuition for their children? And with what consequences? Would not the children of the rich then have all of the opportunities and the children of the poor none? So much for the American dream! But if we care about giving everyone a real chance to make it in this society, then we must make sure that every citizen receives what she or he needs in the way of health care as well as education. Only then can citizens compete fairly in the race for life, liberty, and happiness.

Basic Care or Deluxe?

Stripped of its philosophical frills, Daniels's justification for a right to health care is very simple. Unless a person is able to function as a typical member of the human species, she or he will not succeed in this society. Therefore, unhealthy persons have a *right* to the health care goods and services that will permit them to compete on an equal social and economic footing with healthy persons. Unfortunately, as critics of the right to health care are quick to point out, the demand for such equality of opportunity could create a kind of "bottomless pit" capable of sucking in almost unlimited quantities of social resources.⁸ For example, being born or becoming blind, deaf, or paralyzed surely hampers a person's pursuit of success in our society. The commitment to providing all medical resources to all such individuals might be so demanding, however, that it would lead society into unmitigated fiscal disaster. Daniels replies that the right to health care is not unlimited but has to be balanced against provision for other preconditions of equal opportunity such as education, housing, and legal services. "Clearly," says Daniels, "health care institutions capable of protecting opportunity can be maintained only in societies whose productive capacities they do not undermine."⁷ In other words,

"...the right to health care is not absolute, entitling everyone to the best-health-care-available-no-matter-what, because such an interpretation would assuredly break the bank."

the right to health care is not absolute, entitling everyone to the best-health-care-available-no-matter-what, because such an interpretation would assuredly break the bank.

Charles Fried has observed that it would be anomalous for us to insist that everyone should have a right to the best health care when we do not insist that everyone should have the best education, food, housing, etc.⁹ No laws prevent Mr. X from buying expensive race cars, gourmet meals, luxury mansions, and private schooling for his children. Should there then be laws preventing him from buying a liver transplant at the best U.S. hospital assuming that a liver is available, he is a good medical risk, and he has waited his turn? Fried's point probably makes sense to a lot of people, especially those who can afford a liver transplant, but not everyone agrees, particularly those who cannot afford a liver transplant. The latter people may be very attracted to a more egalitarian interpretation of the right to health care. Philosopher Amy Guttmann, pointing to the values of self-respect ("My life and health should be as important as yours"), equal relief from pain ("Things that hurt you a lot, will probably hurt me a lot too"), and equality of opportunity, insists that if *anyone* has access to a particular health service, then *everyone* in similar straits must also have access to it.¹⁰ This interpretation of the right to health care demands a one-class system in which rich and poor alike have equal access to

needed care. In its purest form, a one-class system even bars the establishment of a medical market in which the wealthy, by paying more, can obtain extra services not provided in whatever basic plan society adopts. Guttmann's position is very similar to that of Amitabha Buddha who refused to enter the Pure Land (the Buddhist equivalent of heaven) unless and until everyone he left behind on earth entered it. In its modern health-care equivalent, we might say: "If one of us cannot have a given treatment, then none of us should. If it is too expensive for all to have transplants, then none should."

What Kind of Health Care System for Us?

However noble communitarianism sounds, I very much doubt that most Americans are ready for a one-tier health care system. If, after all, we decide that there is a right to health care, we will probably try to limit it to *adequate* or *basic* health care. This means, of course, that we will have to figure out what constitutes adequate or basic health care, what we really *need* as opposed to what we would *like* to have. Imagine, say the defenders of a limited right to adequate or basic health care, that we were all placed behind a "veil of ignorance"¹¹ so that we did not know the actual condition of our lives: not our gender, race, particular health care needs, socio-economic class, or special interest groups. Imagine also that we did not know the actual condition of our health care system. Under such conditions of uncertainty, the argument goes, the most rational thing for us to do would be to assume the worst, just to be on the safe side. We would assume that the health care system has severe financial problems, that it cannot pay for everything, and that our chances of being an indigent single mother on Medicaid are as great as our chances of being an elderly widower on Medicare, or a college professor with Blue Cross/Blue Shield insurance. Under these sobering conditions, we would probably want to make sure that Medicaid provided indigent single mothers with

the kind of health care elderly widowers and college professors would count as adequate if they stood in her shoes. Behind our veil of ignorance, we would probably want: (1) insurance to cover adequate prenatal care, since the benefits of protection in early life are great and their preventive impact so well documented; (2) insurance for pediatric care to protect against the threat of premature death; (3) insurance for emergency care because of the life and death difference it can make; (4) insurance for a basic package of primary care, mental as well as physical, that promises early detection of health problems and appropriate entry into all other levels of the health care system; (5) insurance against catastrophes, to cover extensive but curable illnesses; and finally, (6) insurance to protect against the costs of long-term care should we need it in old age, or because of a disabling injury or an illness like AIDS.¹²

Even behind our veil of ignorance, however, it is unlikely that we would buy insurance to cover the costs of care for a persistent vegetative state, or for heroic attempts to rescue premature infants with extremely poor prognoses, or to treat rare diseases, or provide costly cosmetic surgery, or expensive technological interventions that give, at best, a few more days or weeks of life. Knowing that society's need for health care exists side by side with other important needs like education and law enforcement, we would want an insurance package that gives the best chance for long and healthy lives without jeopardizing a viable educational system, military, road system and so on. We would want to *actively ration ourselves*, to set, democratically, our own limits rather than to be passively rationed by the marketplace, by our ability to pay, by physician gatekeepers, or by some remote bureaucracy.

So there we have it: the case for and against the right to health care. As I see it, however, our choices are not limited to either viewing health care as a commodity or as a strict right. In my mind there is no analogy between buying a car on the one hand (I can figure

out some way to do without one) and "buying" a heart on the other (because I cannot live without one). I have no choice in the matter. Nor, in my mind, is there any equivalence between my right to *refuse* medical treatment and my "right" to *demand* medical treatment. If I refuse an organ transplant, my physician must respect my right of refusal and leave me alone. In contrast, may I really demand an organ transplant as a matter of right? What if there are no organs available? What if I am a poor medical risk? What if spending resources on me means that there are no resources left for all the other people who presumably also have a "right" to the kind of treatment I am demanding, who may even be able to make better use of it than I?

Health Care as an Obligation of Decent People

Health care is more than a commodity. Yet it is other than a right. Certainly, it is not only a right. Fundamentally, it is an obligation – something that decent people in an affluent society owe each other even if none of them have a strict right to it. Think about it for a moment. Virtually everyone agrees that the uninsured should be insured, that access is vital. Disagreements are not about the end, but about the means to secure it. And almost everyone agrees that there is no way to provide everyone with everything that medicine has to offer without destroying ourselves in the process. Our society devotes 14% of the GNP to health care.¹³ Can we really go up to 28% or more? What goods and services will we sacrifice in the process?

A moment ago I sketched out a "veil of ignorance" procedure that some thinkers use to specify what should be counted as an adequate right to health care. This procedure does in the abstract what Oregon hoped to do in the concrete: identify and then prioritize the health care *needs*, not *rights*, of its Medicaid population as democratically and rationally as possible. Oregon did not say: "Citizens have a *right* to the

"Health care is more
than a commodity.
Yet it is other than
a right....
Fundamentally, it is
an obligation..."

first 10, 50 or 100 health care items on this priority list. Oregon has to fund them or else." Instead, it said "We believe that our state should provide all of its citizens – especially its most vulnerable citizens – with the health care goods and services they need to live productive and meaningful lives." Oregon acknowledged that the *duty* of beneficence requires a good government to look after the well-being of all of its citizens.¹⁴ But the duty of beneficence is an imperfect duty. The "oughts" that beneficence demands are constrained by the "cans" and "cannots" of pragmatic reality. We cannot always meet the needs that we want to meet, that we think we should meet. We cannot turn water into wine, stones into loaves and fishes. We are not God – only human beings trying to make the best of things.

The objection to what I have just said is a simple one and a sad one. Unless we confer on an obligation the status of a right in this society, we cannot trust each other to honor it. Unless I can sue you or haul you into court, you may not give me what one decent person owes another. It may be that the only sounds we can hear are those of the cash register, adding and subtracting the cost of commodities. It may be that the only moral language we can understand is the adversarial and individualistic language of rights. Perhaps we became deaf to the communitarian and social language of obligation a long time ago. If so, it may be time for us to invest in hearing aids. The language of rights is starting to backfire on us. Consider what is blocking the Oregon plan now. It is the Americans with Disabilities Act – an Act that has much to recommend it but

that, improperly interpreted, can block virtually any attempt to ration health care on the grounds that doing so constitutes discrimination.¹⁵ The language of rights has done much to make us a better people, but it has limits, limits that are reached when we can no longer do good things for each other because our "rights" forbid us to. That is why, when it comes to health care, I prefer the language of responsibilities and relationships, of obligations and commitments. And the first responsibility we have to each other is to set limits on ourselves. We patients – and that's what we all have in common – need to think twice, maybe three times, about what we can reasonably expect "Medicine" to give us, not simply because our

pocketbooks will be hurt if we do not, but because we must accept our mortality as part of what it means to be human, and to live – and yes die – graciously within those limits, mindful of whom we deprive when we take more than our fair share of any resource.

Rights are powerful tools in the cause of moral progress. I would not give up any of mine. But proclaiming a limited right to health care without calling each other to renew our sense of commitment, connection, obligation, responsibility, and relationship is misleading – at least it can be misleading. Think of the billions of dollars we could save if we took better care of ourselves and others, if we did not smoke or drink too much alcohol, if we

did not abuse drugs or practice unsafe sex, if we did not eat artery-clogging foods and lay around on the sofa all afternoon. We Americans owe each other more than rhetoric. We owe each other the *reality* of a society in which we try to give each other the concrete goods and services that we need to function well as human beings. We have done a credible, though far from perfect, job in education. Now it is time to do an equally credible, though inevitably less than perfect, job in health care. We can work as hard as possible to secure something better than what we have now and, as far as I am concerned, that is what we mortals owe one another. □

References

- 1 Daniels N. Just health care. New York: Cambridge Univ Press, 1985.
- 2 Siegler M. A physician's perspective on a right to health care. JAMA 1980;144:1591-6.
- 3 Preamble. Constitution of the World Health Organization. Off Rec Wld Hlth Org. 2:100, July 22, 1946.
- 4 Interview. Voices in the health care debate. Wall St J 1993 Feb 16:A14.
- 5 Veatch RM, Steinfals P. Who should pay for smokers' medical care? Hastings Cent Rep 1974;4:8-10.
- 6 Callahan D. What kind of life. New York: Simon and Schuster, 1990, pp 103-31.
- 7 Daniels N. Health care needs and distributive justice. Phil and Public Affairs 1984;10:146-79.
- 8 Fried C. Right and wrong. Cambridge, MA: Harvard Univ. Press, 1978, pp 108-31.
- 9 Fried C. Rights and health care – beyond equity and efficiency. N Engl J Med 1975;293:241-5.
- 10 Guttman A. For and against equal access to health care. Milbank Q 1981;59:542-60.
- 11 Rawls J. A theory of justice. Cambridge, MA: Harvard Univ. Press, 1971.
- 12 Callahan D. Setting limits. New York: Simon and Schuster, 1987, pp 159-83.
- 13 President's commission for the study of ethical problems in medicine and biomedical and behavioral research. Securing access to health care. 1983 March; 1:22.
- 14 Farnsworth CH. Now patients are paying amid Canadian cutbacks. NY Times 1993 Mar 7:10.
- 15 Dougherty C. Setting health care priorities: Oregon's next step. Hastings Cent Rep 1991;21:Suppl 1-10.

You'll love working with our locum tenens physicians and allied health care professionals. WE GUARANTEE IT.

CompHealth has thoroughly credentialed physicians and allied health care providers from more than 40 fields of specialization available to provide locum tenens, or temporary, staffing assistance when and where you need it.

Plus, we have the standards and experience to guarantee your satisfaction each time we place a member of our medical staff in your practice or facility. It's the closest thing you'll find to a risk-free way to cover for absent staff members, "try out" a potential new recruit, or take care of your patients while you search for a new full-time associate.

Call us today to arrange for quality locum tenens coverage, or to discuss your permanent recruiting needs.

CompHealth

COMPREHENSIVE HEALTH CARE STAFFING

1-800-453-3030

Salt Lake City ■ Atlanta ■ Grand Rapids, Mich.

Thoughts on Reading "Is There a Right to Health Care?"

A Response to Professor Tong's Article

J. Leonard Goldner, M.D.

Rosemarie Tong's question has, to an extent, already been answered by the United States Congress. The Emergency Medical Treatment and Active Labor Act (EMTALA) compensates patients who are "dumped" by hospitals, thereby providing a right (entitlement) to treatment for persons with certain medical emergencies. Another example is the law that gives undocumented immigrants the right to emergency care. Hospitals at present are required by law to provide unfunded emergency treatment (although President Clinton's health system advisors have outlined plans for a \$1 billion a year fund to reimburse states for this care).

The right to *emergency* care may be established, but solutions for other medical problems require physician altruism and community involvement. A recent newspaper article recounted the story of a mother who could not enroll her child in kindergarten until the child had a preschool examination by a physician and appropriate immunizations. The State Legislature mandated this requirement but did not provide funds or tax credits for those too poor to afford it. By law, the child has the right to attend school, but not to obtain the medical care needed to do that.

President Clinton has proposed that each citizen have a Health Security Card which will confer on that person the right to diagnosis and treatment based on current standards of care. Medications may also be covered. We need to remember certain caveats asso-

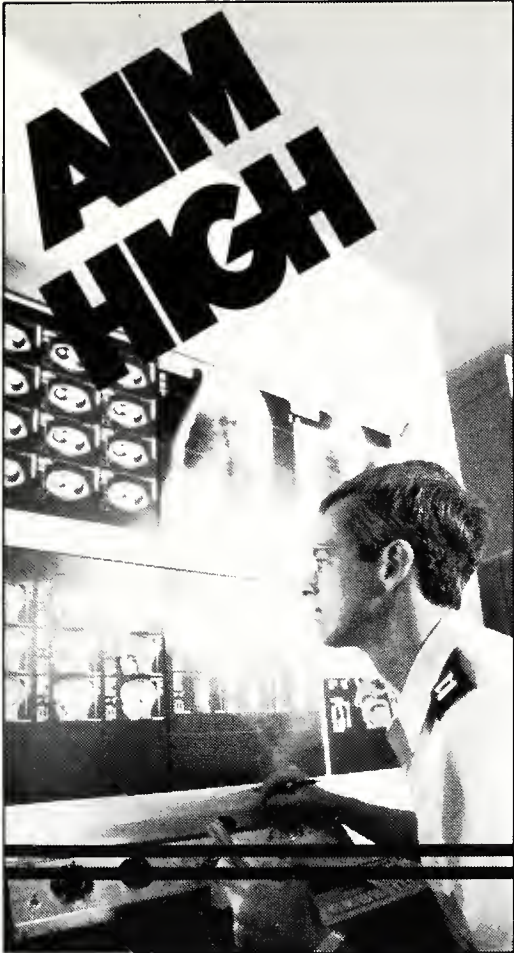
ciated with the entitlement or rights concept: 1) physicians should not be indentured to patients—they must have the right to refuse to establish a doctor-patient relationship for various reasons; 2) the right to *essential* medical care does not include all or any available medical care because when patients claim a legal right to *all* medical treatments (whether or not the physician agrees), they establish an adversarial doctor-patient relationship rather than one of physician advocacy; 3) if the concept of health-care-as-a-right prevails, the patient may be held responsible by peers and professionals for "not taking care of himself." The alcoholic, drug addict, gun toter, nicotine addict, or pathological obese individual may be penalized for draining the system and increasing costs of care. An analogy can be drawn to the higher premium charged to automobile drivers who have penalty points compared to drivers without points. This issue is not readily solved; the ramifications are endless.

Health costs already take 14% of the Gross Domestic Product. As the rights concept is promoted, this will increase since experience shows that entitlements produce only rises in costs rather than declines. There is no example of a public entitlement that has ever brought financial savings from within the bureaucratic system. Medicare, as initiated in 1964, appropriately provided many individuals with security and protection for their medical care, but the right of demand was not tempered by incentives to save and the costs have escalated each year. Proposals such as the "medical IRA" would

give patients an incentive to save money, to seek treatment options, and to benefit financially by avoiding frivolous, unproven or unnecessary treatment.

Everyone *should* have access to essential medical care, but requests for that care must be controlled by physiological, ethical, and moral decisions made on the basis of the severity of the illness, the age of the patient, the likelihood of success of treatment, the patient's wishes, and the costs involved. For example, a 25-year-old motorcyclist with a crushed, devascularized, nerve-damaged foot may demand that the foot be saved "at all costs" (it's not his money), even though rational medical evaluation would suggest amputation followed by fitting with an artificial limb and a quick return to productive life. And aged persons with serious illnesses and bad prognoses should be allowed to choose home care and conservation of their estate rather than a few months of low-quality existence at the cost of a massive hospital bill.

President Clinton's Health Security Card will give us the right to essential medical care but without limits on litigation. As the rights of 250 million Americans (including 37 million presently uninsured) become legalized, litigation will increase. Medical negligence should not be tolerated, but caps on pain and suffering would emphasize that patients, too, have responsibilities as they participate in the adventure. Both physicians and patients have obligations to themselves and to society for the ongoing ethical, moral, and economic factors that are inherent in the right to health care. □



SPECIALIZE IN AIR FORCE MEDICINE.

Become the dedicated physician you want to be while serving your country in today's Air Force. Discover the tremendous benefits of Air Force medicine. Talk to an Air Force medical program manager about the quality lifestyle, quality benefits and 30 days of vacation with pay per year that are part of a medical career with the Air Force. Find out how to qualify. Call

**USAF Health Professions
Toll Free
1-800-423-USAF**



WOMBLE CARLYLE SANDRIDGE & RICE

HEALTH CARE ENVIRONMENTAL MANAGEMENT GROUP

R. Howard Grubbs

Karen Estelle Carey

Lori P. Hinnant

C. Elizabeth O'Keeffe

Concentrating in environmental planning, compliance, negotiation, and litigation on behalf of health care facilities, including construction matters, underground storage tanks, Superfund, medical waste disposal and transportation, lead contamination, air quality issues and EPA and OSHA regulations.

Winston-Salem

1600 Southern National Financial Center
P.O. Drawer 84
Winston-Salem, NC 27102
(919) 721-3600

The Psoas Signs

Well-Described but Often Forgotten Physical Examination Findings of Iliopsoas Inflammation

Jeffrey G. Wong, M.D.

The importance of developing strong physical diagnosis skills has been deemphasized in medical training because of the ready availability of diagnostic imaging techniques. Nevertheless, it remains prudent for the busy practitioner to recognize and use clues gleaned from the physical examination. In practice, being alert to such clues allows the investigation of the patient's complaints to be focused and increases the efficiency of patient care.

I present here two recent cases, both of which had the classic historical and physical examination findings of iliopsoas inflammation. The actual diagnosis was ultimately made in both, but earlier recognition of iliopsoas signs could have resulted in more timely diagnosis and treatment

The First Patient

A 55-year-old white woman was seen for follow-up evaluation of right upper leg pain. She had spent the day before her initial visit working around her home—bending, stooping, climbing ladders and twisting. She went to bed feeling well but awoke the next

morning with *right lower quadrant abdominal discomfort and noted that pain extended down the anterior aspect of her right thigh with walking*. She was diagnosed as having musculoskeletal strain and was given ketoprofen for five days as symptomatic treatment. This worked well as long as she took it, but once the course of medicine was completed, the symptoms returned and were increasingly severe. Her past history was notable for vaginal hysterectomy for cervical carcinoma in situ. She was on estrogen hormonal replacement as her only medication.

On physical examination, the patient was in mild discomfort at rest, but the pain worsened with movement. The blood pressure was 152/86, pulse 100/min, and the temperature was 37.4° C. The abdomen had normally active bowel sounds and was soft to palpation. There was right lower quadrant pain on palpation and some pain over the right iliac crest, in the right femoral region extending onto the thigh, and in the right lower lumbar region. No masses were felt. There was no rebound or guarding. The pain was exacerbated by straight leg raising and by twisting of the torso. The rectal exam revealed guaiac negative stool but did not increase the patient's symptoms. The deep tendon reflexes, sensation to pinprick and light touch, and strength testing in the legs were normal. It was difficult for her to rise up on tiptoe with

the right leg and she limped when she walked due to the pain.

Laboratory tests showed 17,900 white blood cells per mm³ with mild increase in immature polymorphonuclear leukocytes. An ultrasonic examination of the pelvis revealed a heterogeneous mass in the right lower abdominal quadrant. The appendix was not visualized. A computed tomographic scan revealed a multiply loculated, 5 x 5 x 7 cm right lower quadrant mass. In the operating room an abscess with surrounding inflammation secondary to a ruptured appendix was found. The abscess was evacuated, the patient received a course of broad spectrum antibiotic therapy, and was discharged home in good condition.

The Second Patient

A 76-year-old woman presented with sudden onset of right thigh, flank and back pain. The day before she had been playing tennis and remembered stretching for a difficult shot. At that time she noted a little back pain but thought nothing more of it. She went to bed feeling well but awoke the next morning with *severe pain in the right groin which radiated to the anterior thigh*. This was also accompanied by pain in her lower back. These pains were unrelieved by position though she reported being more comfortable while

From the Division of General Internal Medicine, Box 3375, Duke University Medical Center, Durham 27710.

moving compared to lying still. She complained of slight nausea, no vomiting and a mild faint feeling upon standing upright. Her past history was notable for carcinoma of the bladder for which she had undergone transurethral resection three years ago, and a ventral hernia. Her only medication was aspirin as needed; she smoked cigarettes and had for many years.

Physical examination revealed an elderly woman in mild discomfort. The blood pressure was 162/80, pulse 80/min, and temperature 38.0°C. The abdominal exam revealed normal bowel sounds without palpable mass or hernia. There was tenderness in the right lower quadrant and lower lumbar back region which was made worse by flexing the thigh. Mild rebound and referred tenderness was noted in that area. Rectal exam revealed guaiac positive stool and exacerbation of pain with palpation of the right side of the rectal vault. Deep tendon reflexes, sensation to pin-prick and light touch and strength testing were normal.

In the emergency room, an acute abdomen developed. She subsequently underwent exploratory laparotomy where a cecal mass with localized perforation and contamination was seen. Pathology revealed poorly differentiated adenocarcinoma with metastases noted in the liver and locally within the pelvis. Following surgery, the patient underwent a course of chemotherapy without significant clinical response. She died two months later.

Signs of Iliopsoas Inflammation

Signs and maneuvers associated with inflammation of the iliopsoas muscle (see Table) are described in textbooks of physical diagnosis and are cited in authoritative textbooks of medicine. The physical finding—pain on flexion of the hip with radiation down the anterior aspect of the thigh—may be seen in otherwise occult inflammatory processes in the retroperitoneum or pelvis which irritate the psoas muscle.¹

Flexion of the hip or thigh against resistance, the *iliopsoas test*, causes

“Common conditions that lead to development of a psoas abscess include diverticulitis, appendicitis, Crohn’s disease, and other localized inflammatory processes.”

Table. Signs and maneuvers associated with iliopsoas muscle inflammation

Physical Symptoms

Pain in the lower quadrant of the abdomen, radiating down the anterior aspect of the thigh, and associated with otherwise occult inflammatory processes of the retroperitoneum or pelvis that involve the psoas muscle.

Psoas Sign

The patient, while lying supine, holds the knee slightly flexed and the hip slightly externally rotated (tends to minimize discomfort at rest).

Iliopsoas Test

ACTION: Flex the hip or thigh against resistance.

RESULT: Causes contraction of psoas muscle eliciting pain.

Reverse Psoas Maneuver or Cope’s Iliopsoas Test

ACTION: With the patient lying on the side, forcibly hyperextend the contralateral thigh and hip.

RESULT: Causes stretching of psoas muscle eliciting pain.

Psoas Spasm Sign

ACTION: With patient lying prone and knee flexed, pull up on the ankle to hyperextend the hip while the other hand restrains lightly on the ipsilateral lumbosacral area.

RESULT: Causes stretching of psoas muscle eliciting pain.

contraction of the psoas muscle.^{2,3} In the setting of inflammation, either within the muscle itself or contiguous to the muscle, the patient experiences pain. The so-called *psoas sign* refers to the preferred posture assumed by the patient who lays supine with the knee slightly flexed and the hip slightly rotated externally. This tends to be the most comfortable rest position⁴. The *reverse psoas maneuver* (*Cope’s Iliopsoas test*)⁴ is another technique used to localized the pain. It is performed with the patient lying on the side and forcibly hyperextending the contralateral thigh and hip. Finally, the *psoas spasm sign* is detected by having the patient lie prone with the knee flexed⁴. The examiner pulls up on the ankle to hyperextend the hip while the other hand restrains lightly on the ipsilateral lumbosacral area. These two maneuvers *stretch* the psoas muscle and elicit pain.

The Pathophysiological Mechanism

The pain of iliopsoas inflammation radiates down the anterior aspect of the thigh on the affected side. The femoral nerve courses along side the femoral artery and vein in the femoral triangle where it is juxtaposed to the iliopsoas muscle⁵. A branch of the femoral nerve, the intermediate femoral cutaneous nerve, carries pain and sensory fibers from the anterior aspect of the thigh. The localized involvement of these pain fibers by adjacent iliopsoas inflammation is responsible for the characteristic location of the pain.

The constellation of signs is classically seen in psoas abscess where there is actual infection of the muscle by direct extension from an infection of an adjacent structure. Common conditions that lead to development of a psoas abscess include diverticulitis, appendicitis, Crohn’s disease, and other localized inflammatory processes⁶. Occasionally, a psoas abscess results from extension of a perinephric abscess or from secondary infection of a retroperitoneal hematoma. Rarely, in children, psoas abscesses can develop

through hematogenous spread of infection.⁷

Clinical manifestations of a psoas abscess include fever, lower abdominal pain, and low back pain which may be referred to the hip, anterior thigh or knee (because of nerve involvement as noted above)⁶. A limp may be evident and a flexion deformity of the hip due

to reflex spasm is occasionally seen. As in both of the patients presented above, the symptoms and signs may mimic those of musculoskeletal back pain ascribed to injury or overuse. Some of the findings (pain with straight-leg raising, limp, etc.) may seem to point to herniated interspinal disc. The main distinguishing feature is the radiation of the

pain to the anterior portion of the leg rather than the lateral or posterior thigh and leg as traditionally described in sciatica. Remembering the signs of iliopsoas inflammation may help to properly focus investigation in patients who need surgery or antibiotics more than anti-inflammatory drugs. □

References

- 1 Reilly BM, ed. Acute Abdominal Pain in Practical Strategies in Outpatient Medicine. Philadelphia: W.B. Saunders. 1991: 714.
- 2 DeGowin EL, DeGowin RL. Bedside Diagnostic Examination, 4th edition. New York: Macmillan. 1981: 550.
- 3 Bates B. A Guide to Physical Examination and History Taking, 4th edition. Philadelphia: J.P. Lippincott. 1987: 349.
- 4 Sapira JO. The Art and Science of Bedside Diagnosis. Munich-Baltimore: Urban and Schwarzenberg. 1990: 80, 379.
- 5 Moore KL. Clinically Oriented Anatomy, 3rd edition. Baltimore: Williams and Wilkins. 1992: 384, 389.
- 6 Schur PH. Psoriatic arthritis and arthritis associated with gastrointestinal diseases. In: Wilson JD, Braunwald E, Isselbacher KJ, et al, editors. Harrison's Principles of Internal Medicine. 12th edition. New York: McGraw Hill. 1991: 1483.
- 7 Swartz N. Myositis. In: Mandel GL, Douglas, RG, Bennett JE, editors. Principles and Practice of Infectious Disease. 3rd edition. Edinburgh: Churchill Livingstone. 1990: 816.

It's your choice:

**4 hours at 4 auto dealers
haggling over \$400**

or

**4 hours on the links with
your favorite foursome.**

That's right. While you're attending to more pressing issues, Auto Brokers International can locate the best deal on the car of your choice. We shop, we haggle, we negotiate. And, if we can't save you time and money, we don't get paid. Period.

787-1098

Long distance
1-800-645-6413

**AUTO BROKERS
INTERNATIONAL, INC.**

3301 Woman's Club Drive, Suite 127
Raleigh, North Carolina 27612
(919) 787-1098 FAX 787-1098



AFFORDABLE

**MEDICAL OFFICE MANAGEMENT SYSTEMS
MEDI SOFT & PROSPECTUS MEDICAL
OFFICE SYSTEMS**

*Electronic & Paper Claims System
Single & Multi-User
LAN Networks - Novell LanTastic®
Insurance Billing System
In Office Staff Training & Support
Medical Office Records System
Multiple Reports Available
Customization Available*

FOR MORE INFORMATION PLEASE CALL:

PROSPECTUS COMPUTER SYSTEMS
847 WEST LAKE DRIVE
MT. AIRY, N.C. 27030
(919) 789-8490

CERTIFIED
Kodak
IMAGEWATCH
Program

DEALER

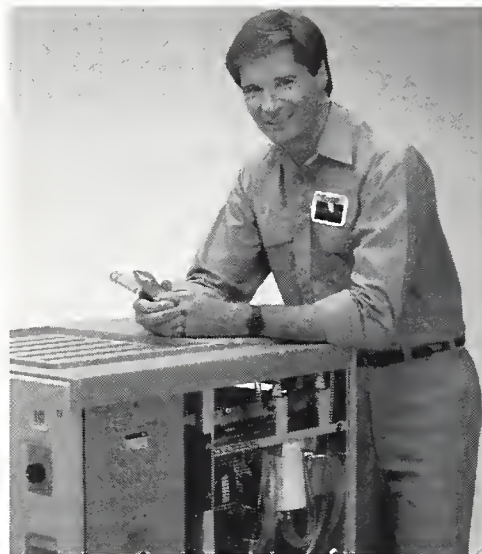
B&B XRAY

Because It's Your Image That Counts

B & B X-Ray, Inc.
704/845-8521 • 800/447-XRAY

We are proud to be among the finest medical supply dealers in the United States to be awarded this Certification by Kodak's Health Sciences Division. It certifies that:

1. Our key Service Representatives have been fully trained in the **KODAK IMAGEWATCH** Program to provide world-class service and support for KODAK X-OMAT Processors; and
2. We fully support the **KODAK IMAGEWATCH** Program's total commitment to set new world standards in the quality and value of Kodak's medical diagnostic imaging products, systems, services and support programs.



**CERTIFIED FOR
MEETING HIGHER
QUALITY STANDARDS IN
MEDICAL DIAGNOSTIC
IMAGING SERVICES AND
SUPPORT.**

IMAGEWATCH and the KODAK IMAGEWATCH Program logo are trademarks of Eastman Kodak Company used under license. This dealership has been certified in KODAK X-OMAT Processor service under the KODAK IMAGEWATCH Program.

When God Was Tired: Clozapine Overdose

Ronald B. Mack, M.D.

No question, Mark Twain was an American original. We do not have his equal these days when we need one. He had an uncanny ability to cut to the chase, to put into words what had to be said. As a commentator on the foibles on human beings he was never mean-spirited or degrading; he was too much the Victorian gentleman ever to commit such sins. He could, however, be very barbed and humorous, as when he remarked, "Man was made at the end of the week's work, when God was tired."¹

Mr. Twain lived in an era without specific antipsychotic medications, but he must have believed there was a great need for such therapy. He said: "Another thing which we often forget or try to: that no man has a wholly undistressed mind; that in one way or another all men are mad." He further explained, "The way it is now, the asylums can hold the sane people, but if we tried to shut up the insane we should run out of building materials." I believe he would have appreciated the ability of clozapine to help some of the people that God made when he was tired.

Now if we agree that we are imperfect beings, we can agree that mental illness is quite prevalent in our civilization. A recent study found that the lifetime prevalence of any mental disorder in the general population is 22%

"The cause of schizophrenia, of course, remains yet unknown, but current research seems to focus on identifying underlying structural and functional brain lesions and on discovering whether they are genetically determined..."

(33% if you include substance abuse and alcoholism).² Most mental disorders affect mainly the young and they tend to be chronic, recurring and, in the majority of patients, can last a person's entire life. An example of such an unfortunate clinical disorder is schizophrenia, which usually begins in adolescence or young adulthood. The reader may recall that these patients are characterized by flat or inappropriate affect, disordered thought, impaired reality testing and bizarre, disorganized behavior.³ Such patients are said to exhibit "positive" manifestations—agitation, delusions, and auditory hallucinations—which are currently believed

to result from an abnormally reactive brain dopamine system, and to manifest "negative" behaviors—social withdrawal, anhedonia, lack of motivation, and decreased or absent speech.^{4,5} The "negative" symptoms are thought to be the result of decreased brain function, and they are quite difficult to treat with medication. Schizophrenia and other similarly disruptive maladies obviously result in severe social and occupational dysfunction, involve frequent hospitalization for many of these patients, and usually have an unfortunate deteriorating course.

To those of us who are now considered medical dinosaurs (I refer here to myself as *Ronasaurus Rex*, to save the House Staff, students, and sundry other readers the trouble), the modern approach to understanding mental disorders is astounding. The era of psychoanalysis alone is no longer here, at least not the way it was taught to me; no longer is faulty breast feeding or improper toilet training the basis of diagnosis, nor is catharsis the mainstay of therapy.

The cause of schizophrenia, of course, remains yet unknown, but current research seems to focus on identifying underlying structural and functional brain lesions and on discovering whether they are genetically determined or not.² For example, imaging studies of the brains of patients with schizophrenia show diminished cortical activity in the frontal lobes compared with controls.⁶ Continuing investiga-

From the Department of Pediatrics, Bowman Gray School of Medicine, Wake Forest University, Winston-Salem, NC 27103.

tion into the neurochemical systems of the mentally disturbed continues, of course, but there seems to be a shift toward investigation of the genetic development and environmental interactions that produce dysfunctions of the brain.

It is by this time fairly well appreciated that perturbations in the role of the neurotransmitter dopamine are critical in the pathogenesis of schizophrenia. Most dopamine receptors are found on projections from cell groups in the midbrain, that is, into areas that control extra-pyramidal movements as well as into the frontal cortex, an area believed to be involved in psychotic processes. There are two known subtypes of dopamine receptors in the central nervous system.⁷ Type 1, known as D_1 receptors, stimulates adenylate cyclase activity, is associated with antipsychotic efficacy, and may modulate the intensity of movement disorders. Type 2, or D_2 receptors, are independent of or inhibit adenylate cyclase activity; blockade of these receptors is associated with antipsychotic activity as well as with the direct pathogenesis of some movement disorders.

The usual therapeutic arsenal directed against acute schizophrenia includes such well known medications as chlorpromazine (Thorazine), haloperidol (Haldol), fluphenazine (Prolixin) and thiothixene (Navane). The long-term chronic treatment of patients with schizophrenia involves the use of such neuroleptic drugs, rehabilitation in social, vocational and cognitive areas, and very intensive family management. Neuroleptic medications can ameliorate psychosis but can also produce extrapyramidal symptoms by blocking dopamine receptors.⁸

As you might expect, these medications do not necessarily solve the problem. It is estimated that despite treatment with the usual neuroleptic agents, 10% to 20% of patients with schizophrenia remain symptomatic.⁹ And many patients cannot tolerate the usual neuroleptic agents because of their adverse neurological effects, especially extrapyramidal symptoms such as involuntary spasms of the muscles of the face, tongue, neck and trunk.¹⁰ Re-

call the fact that currently marketed antipsychotics appear to work by blocking dopamine receptors, especially D_2 .¹¹ Long-term blockade of dopamine receptors can lead to tardive dyskinesia, a chronic movement disorder that includes stereotypical movements of mouth, lips, and tongue, as well as choreoathetoid movements of the extremities.¹⁰ This condition is thought to be due to supersensitivity of the dopaminergic receptors due to chronic receptor blockade. Tardive dyskinesia occurs in 10% to 30% of patients on long-term therapy with antipsychotic drugs.

In 1990 a new antipsychotic drug named Clozaril (clozapine) was brought forth, and it is believed to be superior to older drugs in treating refractory schizophrenia. Its targeted use is in schizophrenic patients who do not respond to standard antipsychotic medications or who suffer intolerable adverse effects from those drugs.¹² Some experts estimate that as many as 50% of patients receiving neuroleptic medication do not comply with prescribed therapy once discharged from the hospital; the most often cited reason: adverse effects from the drugs.¹³

Clozapine is classified as an "atypical" neuroleptic because it has a greater selectivity for dopamine receptor subtypes and has less potential for inducing extrapyramidal effects and tardive dyskinesia.¹⁴ It preferentially blockades D_1 over D_2 dopamine receptors and is selective for sites in the limbic regions of the brain instead of extrapyramidal sites.¹² It has the least affinity of any antipsychotic drug for dopamine (D_2) receptors in the caudate nucleus, the highest affinity for muscarinic acetylcholine receptors in the same area, and relatively little effect on gamma-aminobutyric acid (GABA) activity in the substantia nigra. As a result, it is believed that clozapine will cause only minimal elevation of serum prolactin, have very few extrapyramidal effects and may not cause tardive dyskinesia.¹⁵ Its volume of distribution (V_D) is quite high—5.0 L/kg—and it is highly protein bound, two properties that make extracorporeal removal following a serious overdose virtually

impossible.¹⁵ Clozapine has extensive first-pass hepatic metabolism so that only 6% to 48% is bioavailable after oral dosing. Peak concentration is reached in 1.5 to 2.5 hours. The elimination half-life ($T_{1/2}$) is 8 to 12 hours. Clozapine has an antagonistic action at serotonergic, adrenergic and cholinergic receptors.

Overdose on Clozapine

Patients who overdose on clozapine may present with a potpourri of clinical adversities. A patient who is still able to talk might complain of blurred vision and dry mouth. Examination of an overdosed patient could reveal lethargy, hypotension, tachycardia and hyperthermia. Delirium can be seen as well as seizures, respiratory depression and coma. Extrapyramidal effects are unusual and thank goodness for that. Therapeutic doses for adults begin at 25 mg/day, increasing to a target dose of 300-400 mg/day; fatal doses are generally above 2500 mg taken acutely.¹⁵

Recent case reports might provide the reader with a feeling for the clinical spectrum seen in overdose situations.

Case 1: A 33-year-old man ingested 2250 mg of clozapine.¹⁶ He was somnolent initially, intermittently agitated and had remarkable sialorrhea (instead of the more commonly expected dry mouth). Bowel sounds were hypoactive and he could not urinate. The pupils were 4 mm in diameter and sluggishly reactive; he was tachycardic. Clozapine blood level 2.5 hours after ingestion was 2916 ng/ml (typical therapeutic blood levels are 200-400 ng/ml). The next day, after multiple dose charcoal therapy, the patient was asymptomatic with a blood level of 413 ng/ml.

Case 2: A 31-month-old little girl allegedly ingested 100 to 200 mg of clozapine. She experienced marked hypotonicity, slurred speech, hypersialorrhea, agitation marked by screaming and crying, stupor, ataxia, and myoclonic jerking. An ECG revealed sinus tachycardia.¹⁷ Her clozapine blood level, three hours after

ingestion, was 544 ng/dl. She was discharged after three days with no residual symptoms. It has been speculated that children have a lower threshold for toxicity following a clozapine ingestion and that abnormal symptoms can occur with modestly elevated blood levels. It has been suggested that a single 100 mg tablet or less can intoxicate a toddler.

Treatment for Overdose

By now you have surmised that there is no antidote for clozapine overdose. Treatment is symptomatic and

supportive—treat the patient, not the poison. Giving repetitive doses of activated charcoal appears to be a prudent therapeutic option.¹⁵ Of course patients should be carefully observed for respiratory and other central nervous system depression, seizures and hypotension, and treated accordingly. The wise clinician who measures the serum concentration of liver enzymes will find they are elevated in a large number of patients on clozapine, even at therapeutic doses. Because patients who take clozapine incur a slight risk of granulocytopenia, measurement of white blood count would seem to be in order.

Mark Twain introduced colloquial

speech to American fiction. As a humorist, he had few equals in the art of exaggeration, irreverence and deadpan solemnity. I hope you will pardon me but I feel that his irreverence is his most endearing feature. You have to love someone who says "One of the proofs of the immortality of the soul is that myriads have believed in it. They have also believed the world was flat."¹ Or my personal favorite, "When a thing is sacred to me it is impossible for me to be irreverent toward it. I cannot call to mind a single instance where I have been irreverent, except toward the things which were sacred to other people."¹ What a guy!! □

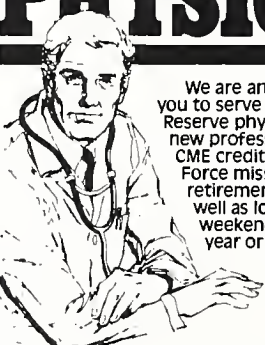
References

- 1 Ayres A, ed. *The Wit and Wisdom of Mark Twain*. New York: New American Library, 1987.
- 2 Michaels R, Marzuk PM. Medical progress: Progress in psychiatry (part one). *N Eng J Med* 1993;329:552.
- 3 American Psychiatric Association. *Diagnostic and Statistical Manual of Mental Disorders*, 3rd ed. Washington, DC: American Psychiatric Assoc. 1987, pp 197-8.
- 4 Ortiz A, Gershon S. The future of neuroleptic psychopharmacology. *J Clin Psychiatry* 1986;47:3-11.
- 5 Andreasen NC. Positive vs negative schizophrenia: a critical evaluation. *Schizophr Bull* 1985;11:380-9.
- 6 Weinberger DR, Berman KF, Illowsky BP. Physiological dysfunction of the dorsolateral prefrontal cortex in schizophrenia III. *Arch Gen Psychiatry* 1988;45:609-15.
- 7 Clark D, White FJ. Review: D1 dopamine receptor - the search for a function. *Synapse* 1987;1:347-88.
- 8 Ereshefsky L, Watanabe MD, Tran-Johnson TK. Clozapine: an atypical antipsychotic agent. *Clin Pharm* 1989;8:691-709.
- 9 Haller E, Binder RL. Clozapine - a new and different neuroleptic. *West J Med* 1990;153:62-4.
- 10 Viccellio P, ed. *Handbook of Medical Toxicology, Antipsychotic Agents* by Kwiatkowski T. Boston, MA: Little, Brown and Co, 1993; pp 531-9.
- 11 Bablenis E, Weber SS, Wagner RL. Clozapine: a novel antipsychotic agent. *DCIP* 1989;23:109-15.
- 12 Medical letter. Clozapine for schizo-

- phrenia 1990;32:1-4.
- 13 Hoffman RP, Moore WE, O'Dea LF. Medication problems confronted by the schizophrenic patient. *J Am Pharm Assoc* 1974;14:252-6.
- 14 White FJ, Wang RY. Differential effects of classical and atypical antipsychotic drugs at A9 and A10 dopamine neurons. *Science*

- 1983;221:1054-7.
- 15 Clozapine. *Poisindex*, Micromedex, Inc., 1993;77.
- 16 Wolf LP, Otten EJ. A case report of clozapine overdose. *Vet Hum Toxicol* 1991;33:370.
- 17 Mady SP, Wax P. Clozapine intoxication in a young child. *Vet Hum Toxicol* 1993;35:338.

PHYSICIANS



We are announcing opportunities for you to serve your country as an Air Force Reserve physician/officer. You can make new professional associations, obtain CME credit and help support the Air Force mission. For those who qualify, retirement credit can be obtained as well as low cost life insurance. One weekend a month plus two weeks a year or less can bring you pride and satisfaction in serving your country.

CALL: Or Fill Out Coupon and Mail Today!

To: MGST Linda Landrum
2400 RRMS/RSB-1
Bldg 1000, Room 112
Charleston AFB, SC 29404-6004

Name

Address

City State Zip

Phone Prior Service? Yes ☐ No ☐

Medical Specialty Date of Birth

AIR FORCE RESERVE

25-301-0009



A GREAT WAY TO SERVE

Tardive Dyskinesia and Pseudo-Parkinsonism

In a Nursing Home Patient Who Itched

William G. Ondo, M.D., Barrie J. Hurwitz, M.D.

Extra-pyramidal side effects are a well established consequence of phenothiazine use. The clinical presentations of the side effects can be quite varied and are often mistaken for other neurologic or psychiatric conditions. We recently cared for a nursing home resident who received 14 months of uninterrupted therapy with trimeprazine (Temaril), an antipruritic phenothiazine. Early signs of her developing side effects were misinterpreted as depression or anxiety and her case was further complicated by the failure of her physicians to recognize trimeprazine as a phenothiazine despite her fairly classic presentation.

The Patient

The patient was a 73-year-old right-handed woman. She lived in a nursing home, but was considered independent and able to perform activities of daily living. Her past medical history was significant for depression for which she took 75 mg of imipramine at bedtime. Other medications included ranitidine 150 mg po qd and Gaviscon 30 ml qid, and trimeprazine tartrate 2.5 mg po tid for pruritus.

From the Division of Neurology, Department of Medicine, Duke University Medical Center, Durham 27710.

She had been receiving trimeprazine continuously for approximately 14 months when she was noted by the nursing home staff to have "jerk movements" of her face and arms. Two days later she was admitted to a community hospital, unresponsive to voice commands and markedly dyspneic. Examination by an internist and a neurologist documented constant involuntary movements of her tongue, face and arms, increased muscle tone and a Parkinsonian rest tremor. She was felt to have a dystonic drug reaction to imipramine and was given intravenous diphenhydramine (50 mg every 6 hours) without improvement. After 12 days she was transferred for further evaluation. The transfer summary specifically noted that the patient had received "no phenothiazines" before or during her hospitalization.

At our initial examination, the patient was conscious, but unable to communicate in any fashion. She was afebrile; pulse rate was 117 and regular; blood pressure, 180/90; respirations, 28 per minute. Pulmonary and cardiovascular exams were normal. Abdomen was mildly distended with decreased bowel sounds; rectal exam was normal. Neurologic examination revealed an elderly white woman who could look toward voice and appeared purposeful, but was unable to follow commands or communicate. She dem-

"Extrapyramidal side effects can develop anywhere from days to more than 10 years after beginning dopamine antagonist drugs."

onstrated a constant bucco-facial-lingual dyskinesia. Muscle tone was rigidly increased to the point of pseudocatatonic posturing. There was cogwheeling rigidity and a 4-6/sec resting, pill-rolling tremor of the hands. Her reflexes were 2+ throughout and plantar responses were flexor. All findings were bilaterally symmetric. Blood counts, serum electrolytes, liver function tests, thyroid panel, chest x-ray, ECG, and head CT were all normal. Blood gases measured while she was breathing room air showed a pH of 7.41, pCO₂ 27, pO₂ 68. Imipramine/desipramine level was in the therapeutic range at 288 µ/L (desired levels: 150-400 µ/L).

We diagnosed the patient as having a neuroleptic-induced tardive dyskinesia and pseudo-parkinsonism due to trimeprazine. The drug was discontinued and she was treated with trihexyphenidyl (Artane), initially 1.0 mg po bid and titrated up to 5.0 mg po tid. The patient demonstrated moderate symptomatic improvement; after 14 days clonazepam 1 mg po qd was added and greatly accelerated her recovery. After a 29-day hospitalization, the patient was able to walk well with a walker and was verbally communicating without difficulty. She had a mild residual tongue dyskinesia, but no other parkinsonian or dyskinetic features. Her itching did not return.

The Nature of Extrapyramidal Side Effects

The effects of antagonizing dopamine receptors in the central nervous system constitute a diverse spectrum of clinical signs, the pathogenesis of which remain controversial. Various dyskinesias (involuntary movements), akathisia (subjective restlessness often misdiagnosed as psychiatric illness), pseudo-parkinsonism (muscle rigidity, resting tremor and masked facies), dystonias (sustained hyperkinetic twisting such as chorea) and the neuroleptic malignant syndrome (fever, muscle rigidity, decreased mental status and autonomic lability) are all potential effects of dopamine antagonism. The occurrence of parkinsonian and dyskinetic signs is particularly suggestive of a drug-induced etiology. The few diseases which mimic this presentation (Huntington's Disease, Wilson's Disease and Jacob-Creutzfeldt Disease) can be differentiated on the basis of history and additional salient findings.

Extrapyramidal side effects can develop anywhere from days to more than 10 years after beginning dopamine antagonist drugs.¹ There are several known risk factors for developing side effects. Patients older than 60 years have a significantly higher incidence, often despite relatively low dosage of

medication.² Women present with extrapyramidal side effects three to four times more frequently than men, and controlled inpatient trials demonstrate a statistically higher prevalence in women (47.3% versus 34.7%).^{2,3} Patients with organic brain dysfunction, including HIV infection, have a higher incidence, presumably because of underlying degeneration of the basal ganglia.^{4,5}

The prevalence of neuroleptic-induced extrapyramidal side effects is well documented in the psychiatric literature. Yassa and Nair demonstrated a prevalence of tardive dyskinesia of 28.6%, of pseudo-parkinsonism of 8.9%, and of combined movement disorder of 3.8% in 315 inpatients who had used neuroleptic drugs for more than two years.² Other studies show an even higher prevalence of pseudo-parkinsonism and combined tardive dyskinesia/pseudo-parkinsonism.^{6,7}

Dopamine Antagonists for Nonpsychiatric Conditions

Statistics regarding side effects of nonpsychiatric dopamine antagonists are less well defined. Many such drugs are now employed to treat nausea/vomiting, gastrointestinal dysmotility, chronic pain, general sedation and pruritus. The more widely used include metoclopramide (Reglan), prochlorperazine (Compazine), promethazine (Phenergan), trimethobenzamide (Tigan), and droperidol (Inapsine). More than 1,000 cases (a 0.2% incidence) of metoclopramide-induced extrapyramidal side effects had been reported as of 1989.⁴ These estimates, however, most likely greatly underestimate the prevalence because the side effects often go unrecognized. Jankovic reported that the average delay from symptom onset to correct diagnosis in 16 patients eventually shown to have metoclopramide-induced extrapyramidal side effects was six months.⁴ This is not surprising since Weiden reported that psychiatrists, the subspecialists who should be most familiar with these drugs,

correctly diagnosed only 45% of 48 cases of neuroleptic-induced extrapyramidal side effects.⁸ Despite its longstanding use we could find no documented case reports of extrapyramidal side effects due to trimeprazine since 1979.⁹

What to Do about Extrapyramidal Side Effects

Treatment of extrapyramidal side effects requires removal or diminution of the offending drug in almost all cases. This may temporarily exacerbate the underlying condition, but those augmented symptoms usually subside over time. Adjunctive therapy of pseudo-parkinsonian symptoms includes use of the anticholinergic drugs benztropine (Cogentin) and trihexyphenidyl (Artane). L-Dopa is usually ineffective. Dystonic reactions often respond well to anticholinergic drugs or diphenhydramine. Akathisia is difficult to treat but benzodiazepines, propranolol or clonidine can be used.¹ Tardive dyskinesia is the most permanent and medically refractory of the extrapyramidal side effects. Treatment has traditionally consisted of dopamine depletors (reserpine or tetrabenazine) with or without anticholinergics. More recently, electroconvulsant therapy for severe cases and clonazepam have shown efficacy.^{10,11}

The obvious problem of recognizing these drug-induced effects, their high incidence, and the devastating sequelae of iatrogenic movement disorders warrants a reappraisal of prescription practices. Although dopamine antagonists can be quite efficacious in many settings, their use is not without consequences, often permanent. Eliminating the casual administration of these drugs, especially focusing on attenuating long-term use or using non-dopamine antagonist alternatives, will reduce the incidence of iatrogenic movement disorders. Furthermore, as our case underscores, it is wise to re-evaluate frequently all medications

prescribed in the nursing home setting and geriatric age group. Sometimes even when certain classes of drugs "haven't been used," they have. □

References

- 1 Bennett DR. Drug evaluation annual 1992. American Medical Association 1992;251-3, 356-69.
- 2 Yassa R, Nair V. The association of tardive dyskinesia and pseudo-parkinsonism. *Neuro Psychopharm and Biological Psychiatry* 1988;12:909-11.
- 3 Miller LG, Jankovic J. Neurologic assessment of drug induced movement disorders in 125 patients. *South Med J* 1990;83:525-32.
- 4 Miller LG, Jankovic J. Metoclopramide induced movement disorders. *Arch Intern Med* 1989;149:2486-92.
- 5 Hollender H, Golden J, Mendleson T, et al. Extrapyramidal symptoms in AIDS patients given low dose metoclopramide or chlorpromazine. *Lancet* 1985;2:1186.
- 6 Wolfe ME, Chevesich J, Lehnere E, Mosnaine AD. Clinical association of tardive dyskinesia and drug induced parkinsonism. *Biol Psychiatry* 1983;18:1181-8.
- 7 Richardson NH, Craig TJ. The coexistence of parkinsonism like symptoms and tardive dyskinesia. *Am J Psychiatry* 1982;139:341-3.
- 8 Weiden PJ, Mam JT, Hers G, et al. Clinical nonrecognition of neuroleptic induced movement disorders: a cautionary study. *Am J Psychiatry* 1987;144:1148-53.
- 9 Rainier-Pope CR. Treatment with diazepam of children with drug-induced extrapyramidal symptoms. *S Afr Med J* 1979;55:328-30.
- 10 Gosek E, Weller RA. Improvement of tardive dyskinesia associated with electroconvulsive therapy. *J Nerv Ment Dis* 1988;176:120-2.
- 11 Thaker GK, Nguyen JA, Strauss ME, et al. Clonazepam treatment of tardive dyskinesia: a practical GABA mimetic strategy. *Am J Psychiatry*. 1990; 147:445-51.



For more information, write to:
National Council on Patient Information
and Education (NCPIE)
666 Eleventh Street, NW Suite 810 D
Washington, DC 20001

To fax your request — (202) 638-0773

EXCELLENT PRACTICE OPPORTUNITY FOR BOARD CERTIFIED INTERNIST

Internal Medicine practice in Burlington, North Carolina seeks a BC/BE Internist to join an established and growing practice. Alamance County is a thriving community that offers excellent quality of life, and is located less than 45 minutes from Greensboro, Durham, Chapel Hill, and Raleigh. A new state-of-the-art regional hospital now under construction. Call scheduled one day per week, one weekend per month. Competitive starting salary, benefits, and flexible partnership options. Send CV in confidentiality to:

Alamance Internal Medicine
711 Hermitage Road Burlington, NC 27215
Or call 919 538-1003

LPOCAMSINC!

LOWEST
PRICES
ON
COMPUTERS
AND
MEDICAL
SOFTWARE
IN
NORTH
CAROLINA!

COME
VISIT
OUR
EXHIBIT
AT THE
139TH
MEETING
NOV. 5
AND 6

We offer turnkey hardware and software installations of comprehensive medical office computers at reasonable prices that include billing, accounts receivable/payable, scheduling, detailed practice analysis and reports, and electronic claims.

**G
U
A
R
A
N
T
E
E
D
!**

ValuSystems

MEDICAL OFFICE AUTOMATION

919 538-4991

Continuing Medical Education

November 3-5

Second International Symposium on Inhibitors to Coagulation Factors

Place: Chapel Hill

Credit: 15.0 hours Category I, AMA

Fee: \$300

Info: Office of CME, UNC School of Medicine, CB #7000, Chapel Hill NC 27599-7000. 919/962-2118

November 4-5

Comprehensive Management of HIV Disease: A Clinical Tutorial for Physicians

Place: Chapel Hill

Credit: 16.5 hours Category I, AMA

Info: Office of CME, UNC School of Medicine, CB #7000, Chapel Hill NC 27599-7000. 919/962-2118

November 5-6

Current Therapy in Vascular Surgery

Place: Chapel Hill

Credit: 10.8 hours Category I, AMA

Info: Office of CME, UNC School of Medicine, CB #7000, Chapel Hill NC 27599-7000. 919/962-2118

November 10

Healthy Carolinians 2000

Place: Durham

Fee: \$50

Info: Phylliss Woody, Office of Continuing Education, UNC School of Public Health, CB #8165, Miller Hall, Chapel Hill, NC 27599-8165. 919/966-4032

November 12

Current Topics in Gastroenterology for the Specialist and the Generalist Physician

Place: Chapel Hill

Credit: 5.75 hours Category I, AMA

Info: Office of CME, UNC School of Medicine, CB #7000, Chapel Hill NC 27599-7000. 919/962-2118

November 12

Electromagnetic Fields: Health Effects and Risk Communication

Place: Chapel Hill

Fee: \$40

Info: Phylliss Woody, Office of Continuing Education, UNC School of Public Health, CB #8165, Miller Hall, Chapel Hill, NC 27599-8165. 919/966-4032

November 12-13

BGSM Alumni Weekend

Place: Winston-Salem

Credit: 4 hours Category I, AMA

Info: Division of CME, Bowman Gray School of Medicine. 919/716-4450 or 1-800/277-7654

November 13-14

George Ham Psychiatry Society Meeting

Place: Chapel Hill

Info: Office of CME, UNC School of Medicine, CB #7000, Chapel Hill NC 27599-7000. 919/962-2118

November 13-14

Advanced Cardiac Life Support Course

Place: Chapel Hill

Credit: 15.5 hours Category I, AMA

Info: Office of CME, UNC School of Medicine, CB #7000, Chapel Hill NC 27599-7000. 919/962-2118

November 19-20

Practical Approach to the Diagnosis and Treatment of Lung and Gut Problems in Children

Place: Durham

Credit: hours pending

Fee: \$150

Info: Joseph Marc Majure, M.D., DUMC, Box 2994, Durham, NC 27710. 919/684-2289, 3364; Fax 919/684-2292

November 19-21

Winter Family Physicians Weekend

Place: Asheville

Info: Rodney Webb, Director of CME, NCAFP, PO Box 18469, Raleigh, NC 27619. 919/781-6467

December 2-3

Advanced Trauma Life Support

Place: Greenville

Credit: 17 hours Category I, AMA

Info: Kay Cyrus, Department of Emergency Medicine, ECU School of Medicine, Greenville 27858. 919/551-2154

December 4

UNC Ophthalmology Residents' Day

Place: Chapel Hill

Credit: 3.5 hours Category I, AMA

Fee: None

Info: Ms. Christine C. Cotton, Department of Ophthalmology, CB #7040, 617 Burnett-Womack Building, UNC, Chapel Hill NC 27599-7040. 919/966-5296

Classified Advertisements

URGENT CARE: Immediate opportunity for FP/GP/IM. Forty hour weeks, competitive compensation, independent contractor status. Stable organization since 1979 with strong commitment to quality urgent care and industrial medicine. Clifford K. Callaway, MD, PO Box 667967, Charlotte, NC 28266. 704/521-5075

RALEIGH, NC: Practice opportunity. Join three pediatrician-group in educational, cultural city. Teaching opportunities, consultations at nearby medical centers. Inquire Oberlin Road Pediatrics, 1321 Oberlin Road, Raleigh, NC 27608, or call Mary Anne Clark at 919/828-4747.

JAMESTOWN: Busy ambulatory care centers here and in Danville, VA, seek BC/BE Family or Emergency medicine practitioners. Excellent salary/benefits package. Send CV: Dr. Wr. William Ameen, POB 1176, Jamestown, NC 27282.

CAROLINA! Have you ever considered moving to beautiful Charlotte, North Carolina? Our practice is growing, dynamic, and focused on developing programs to meet the medical needs of the nineties. Our practice emphasizes general neurology, inpatient general medical rehabilitation and neurorehabilitation, and comprehensive pain management. We are in need of an energetic, motivated, and creative neurologist who enjoys hard work, feels compassion for his patients, and strives always to maintain the highest level of professional service. Send your CV to Ronald C. Demas, M.D., 2219 East Seventh Street, Charlotte, NC 28204. We look forward to hearing from you.

NORTH CAROLINA STATE UNIVERSITY, Student Health Service desires BC/BE physician in FP, IM or PED with experience in office GYN and sports medicine. Attractive benefits (CME, malpractice, retirement, health insurance, 24 days annual leave, etc.). Student Health has eight physicians, four NPs, lab/x-ray and pharmacy. Raleigh is a highly desirable living area. Send letter of interest, CV, name, address, phone number for three references to Administrative Director, Student Health Service, NCSU, Box 7304, Raleigh, NC 27695.

PHYSICIAN'S ASSISTANT - INTERNAL MEDICINE & FAMILY PRACTICE: to join two physicians rural health clinic Bertie County in Windsor, NC. You will have independent practice office/nursing home/emergency department of local hospital with physician supervision and working with two other PA-Cs. Beginning salary \$65,000 + benefits. Contact L.E. Reaves, III, M.D. of Bertie

Medical Center, 601 Sterlingworth Street in Windsor, NC 27983. Tel. 919/794-3317

EMERGENCY MEDICINE - THE CAROLINAS: Positions are available for ED Medical Directors and full-time staff physicians at several clients in North and South Carolina. Opportunities in North Carolina include two affiliated hospitals with annual ED volumes of 23,000 and 21,000 in Burlington; Hamlet located one hour from Charlotte and an hour and a half to the ocean; Louisburg, located only 35 minutes from Raleigh; and Mooresville located near Lake Norman and 30 minutes from Charlotte. Lancaster, South Carolina, with an annual ED volume of 23,000, is located a half hour from Charlotte. Spectrum offers independent contract physicians a competitive hourly rate and participation in our occurrence-based malpractice insurance program. Directors also receive health benefits, administrative stipend and participation in a retirement plan after 12 months. Contact Joyce Solomon, Spectrum Emergency care, 1-800/325-3982, ext. 3011.

CARDIOLOGIST BC/BE to join invasive and non-invasive two physician cardiology group in the growing Research Triangle area of NC. All benefits. Submit CV to Cary Cardiology, P.A., 200 Keisler Dr., Suite B, Cary, NC 27511.

RESEARCH TRIANGLE PARK private Occupational Medicine/Family Medicine practice requires fulltime, mature, Board certified or eligible physician. Surgical and orthopedic skills required; occupational medicine experience preferred. Open 8am to 6pm weekdays, excluding holidays; outpatient practice only. For more information, call Carol Kunkel, 1-800/633-5467.

PRIMARY CARE PHYSICIAN - free standing clinic: Urgent Care/Occupational Medicine: Immediate opening in the Piedmont area of North Carolina for aggressive primary care physician interested in long-term career commitment. Excellent salary, fringes plus a progressive profit-sharing plan. Call or send CV to Dr. Jeffrey A. Smith, 613 E. Roosevelt Blvd., Monroe, NC 28112. Phone 704/283-8193.

*For Classified Advertising rates and information, call the **North Carolina Medical Journal** at 919-286-6412. You may also fax ad copy to 919-286-9219.*

New Members

Stephen Jeffrey Chabon(PA), 7258
Strawberry Road, Summerfield
27358

Lawrence Stanley Dewitte (PA), 152
Longleaf road, Southern Pines 28374

Thomas David Dickerson (PA), Lake
Waccamaw Medical Center, PO Box
699, Lake Waccamaw 28450

Sree Lakshmi Kamaraju (P), 4108
Amesbury Lane, Durham 27707

Scott Garth Kirby (EM), 1424 Canter-
bury Road, Raleigh 27608

Lauree Susan Kruyer (PA), 205
Kirkfield Dr., Cary 27511

David Wood Lawhorn (EM), Rich-
mond Memorial Hospital ER, 925
Long Dr., Rockingham 28379

Sandra Nusinoff Lehrman (ID), 3030
Cornwallis Road, Research Triangle
Pk. 27709

Elahe Anna Mostaghel (STUDENT),
1315 Morreene Rd., #27-B, Durham
27705

Joseph August Prahlow (RESIDENT),
Medical Center Blvd., Bowman Gray
School of Medicine, Winston-Salem
27157

Allan Edmund Seffels (PA), 1300
Medical Dr., Fayetteville 28304

Delmer Lee Shelton (PA), Box 3823,
DUMC, Durham 27710

John Shen (OBG), 1000 N. Fifth Street,
Albemarle 28001

Gregg Alan Stark (PA), 2227 Queen
St., Winston-Salem 27103

Walter Harrison Stover, Jr. (PA), 110
Fields Dr., Sanford 27330

Chen Yuan Tung (RESIDENT), 4800
University Dr., #10E, Durham 27707

Avery

Frederick Allen Martin (FP), PO Box
1957, Banner Elk 28604

Bertie-Gates-Herrford

Ricky Lorenzo Brooks (OBG), PO Box
1255, Ahoskie 27910

Buncombe

Leonard Lee Cruz (P), 33 E. Avon
Parkway, Asheville 28804

Robert Frank Hanich (CD), PO Box
7239, Asheville 28802

James Duncan Ladd (IM), 147
Asheland Ave., Asheville 28801

Cabarrus

David Lee Christopherson (FP), 845
Church St., N., Ste. 107, Concord
28027

Carteret

Edward Gray Boston (OBG), 2705
Two Iron St., Morehead City 28557

Catawba

Norman Zelig Einstein (EM), 810
Fairgrove Church Rd., SE, Catawba
Memorial Hospital, Hickory 28602
Daniel On-Fai Lee (N), 1985 Tate Bl.,
SE, Ste. 600, Hickory 28602

John A. McCrary, III (OPH), 1671 8th
St. Dr., NW, Hickory 28601

John Henry Piland (EM), 810 Fairgrove
Church Rd., Emergency Dept.,
Hickory 28602

John Douglas Wilkinson (FP), Box
11159, 2404 Springs Rd., Hickory
28603

Cumberland

Valerie Ann Murray (P), 5677
Pepperbush Dr., Fayetteville 28304
Wayne Harrison Welsher, PO Box
2000, Fayetteville 28302

Durham-Orange

Desmond Kimo Runyan (PD), UNC
Dept. of Pediatrics, Chapel Hill
27599

Ronald Steven Sha
(FP), 3116 N.
Duke Street,
Durham 27704

Forsyth-Stokes- Davie

Mary Ann Griffith
(PD), 1351
Westgate Center
Dr., Winston-
Salem 27103

Maureen Adele
Jarrell (GO),
3333 Brookview
Hills Blvd., Suite

105 Winston-Salem 27103

Mecklenburg

Marcia Anne Harris-Owens (OBG), PO
Box 32861, Dept. of Ob-GYN,
Charlotte 28232

Lisa Renee Schroepfer (RESIDENT),
1609 Drayton Ct., Gastonia 28056

Steven Michael Sutherland (CHP),
3303 Latrobe Drive, Charlotte 28211

Shellee Ann Teets (RESIDENT), 4007
Pemberton Dr., Charlotte 28210

Pitt

Juan Alberto March (EM)I, ECU
School of Medicine, Div. EMS,
Phys. Quad Bldg. M, Greenville
27858

Surrey-Yadkin

Jasmine Muhammed Zain (IM), 933
Old Rockford St., Ste. 5, Mount Airy
27030

Wake

Steven Edmunds Bentley (EM), 11028
Trappers Creek Rd., Raleigh 27612
George Thomas Gamblin (END), 3410
Executive Dr., Raleigh 27609
Frantz Raymond Melio (EM), 4624
Mill Village Road, Raleigh 27612

Moving?

If you are planning to move within the next two months, let us
know where we can send your **North Carolina Medical Journal**.

Print your old address here or attach a mailing label:

Name _____

Old Address _____

City _____ Zip _____

Print your new mailing address here:

Name _____

New Address _____

City _____ Zip _____

Cut out and return this form to:

North Carolina Medical Journal

P.O. Box 3910, Duke University Medical Center
Durham, NC 27710

The North Carolina Medical Journal

Recommended Reading for All Physicians
and Health Care Professionals



Each month, the **Journal** presents a lively and diverse mix of medical and health care-related topics, from scientific to socioeconomic, plus a special pull-out section written for patients.

Physicians in all specialties as well as health care professionals in other fields read the **Journal** because it provides them with information pertinent to their community, their practices, and their professions.

Subscribe for yourself, or treat a friend or colleague to a 1-year gift subscription by simply filling out the coupon below.

Method of Payment:

☐ \$17 Check or money order enclosed, payable to the **North Carolina Medical Journal**. (NC residents add 6% sales tax)

☐ Charge to: VISA _____
M/C _____

Name on Card: _____

Account #: _____

Expiration Date: _____

☐ New ☐ Renewal

Send to: The **North Carolina Medical Journal**, Box 3910, Duke University Medical Center, Durham NC 27710.

Please start my 1-year subscription*:

My Name _____

Address _____

City/State/Zip _____

Please send a 1-year gift subscription to*:

Name _____

Address _____

City/State/Zip _____

*Please allow 4-6 weeks for delivery of the first issue.

Aphorisms of the Month

Daniel Sexton, M.D., Editor

Doctors On Writing

If you wou'd not be forgotten
As soon as you are dead and rotten,
Either write things worth reading,
Or do things worth the writing.

—Benjamin Franklin 1706-1790

In composing, as a general rule, run your pen
through every other word you have written;
you have no idea what vigor it will give your
style.

—Sydney Smith 1771-1845

When once the itch of literature comes over a
man, nothing can cure it but the scratching of a
pen.

—Samuel Lover 1797-1868

Brevity in writing is the best insurance for its
perusal.

—Rudolf Virchow 1921-1902

Writers, like teeth, are divided into incisors
and grinders.

—Walter Bagehot 1826-1877

Slovenly writing reflects slovenly thinking and
obscure writing usually confused thinking.

—Sir Clifford Allbutt 1826-1925

The young physician should be careful what
and how he writes. Let him take heed to his
education, and his reputation will take care of
itself.

—Sir William Osler 1849-1925

The scientific man is the only person who has
anything new to say and who does not know
how to say it.

—Sir James M. Barrie 1860-1937

The cardinal sin in medical writing is not
grammatical error but obscurity.

—Stanley Gilder 1909-

Index to Advertisers

Alamance Internal Medicine	607
Auto Brokers, International	600
Baron Benefits	561
B & B X-Ray	601
CompHealth	595
CompuSystems, Inc.	Back cover
Crompton Company	Inside front cover
Dean Witter	567
Dewees Island, SC	Inside back cover
Dupont	Insert after page 576
Interim Healthcare	563
Medical Mutual Insurance Co.	572
Medical Protective Co.	583
Palisades Pharmaceuticals	577
Prospectus Computer Co.	600
U.S. Air Force	597
U.S. Air Force Reserve	604
U.S. Army	589
U.S. Army Reserve	570
ValuSystems	607
Winchester Surgical Supply	576
Womble Carlyle Sandridge & Rice	597

A PRIVATE OCEANFRONT RETREAT TO CALL YOUR OWN...DEWEES ISLAND MINUTES FROM CHARLESTON, SC



Located only a nine-minute ferry ride north of the Isle of Palms, Dewees Island offers oceanfront and oceanview homesites. Here you'll find one of South Carolina's most breathtaking and expansive beaches, with a development plan dedicated to preserving the island's natural environment.

A convenient property owner's ferry service links the island to a private marina on the Isle of Palms, placing it only minutes from downtown Charleston and the Charleston International Airport.

Environmental covenants limit the number of homes that may be built to 150, thus ensuring the 1,206-acre island will forever be uncrowded...and natural.

Come explore one of the South's last oceanfront islands available for development... you'll find unspoiled beauty at a

surprisingly affordable price.

Oceanview homesites from \$150,000, Oceanfront homesites from \$315,000.

For more information, call 1-800-444-7352 or 886-8783.

*Pat Ross, Broker-In-Charge
Dewees Island Real Estate, Inc.*

DEWEES ISLAND



A PRIVATE, OCEANFRONT
ISLAND RETREAT
DEDICATED TO
ENVIRONMENTAL PRESERVATION

Obtain the property report required by federal law and read it before signing anything. No federal agency has judged the merits or value, if any, of this property.



Photo by Debbie Devilla Photography.

"The peace of mind I get from CompuSystems is the best testimonial I can give."

R. Bruce Jackson II, M.D., Boone, NC

Computer systems to fit your needs

"I first read an ad for CompuSystems on the back of this same journal. At the time, I had an older computer system that just wasn't meeting my needs. Then I learned that a change in the system to allow electronic filing would be quite expensive without really improving it.

"We invited a CompuSystems salesman by. His demonstration of the system in my office showed me that the enthusiastic references I'd heard weren't just hype. He took time to get to know our practice, and he helped us decide on a configuration that suits our needs. No pressure, just a responsive professional who answered all our questions."

Software that inspires confidence

"Now that we're using the system, I find I'm no longer worrying about the billing

and collections in my office. The age of my receivables has been dramatically reduced. I can design my own reports to extract almost any information from the system. Most of all, I'm confident that the business side of my practice is under control."

Gaining peace of mind

"The peace of mind I get from CompuSystems is the best testimonial I can give. It's an investment that allows me to focus on practicing medicine, instead of on the business of medicine.

"If you'd like to hear more, please feel free to call me or drop by."

- *More physicians in North and South Carolina choose CompuSystems' Medical Insurance Processing and Billing System than any other.*
- *Electronic filing directly to North Carolina Medicare, Medicaid, and BC/BS with no per-claim charges.*
- *Features to maximize return, improve cash flow, and increase productivity.*
- *"One-call" total system support, including on-site hardware service.*



CompuSystems
INC.

Call now for details: 800-800-6472

The
Official Journal
of the
North Carolina
Medical Society
December 1993
Volume 54
Number 12

North Carolina Medical Journal

For Doctors and their Patients

Gold, Frankincense, Myrrh, and Medicine

The Medical
and Historical
Significance of the
“Gifts of the Magi”

By Dennis A. Greene, M.D.



Zantac[®] 150 (ranitidine hydrochloride) Tablets

Zantac[®] 300 (ranitidine hydrochloride) Tablets

Zantac[®] (ranitidine hydrochloride) Syrup

BRIEF SUMMARY

The following is a brief summary only. Before prescribing, see complete prescribing information in Zantac[®] product labeling.

INDICATIONS AND USAGE: Zantac[®] is indicated in: 1. Short-term treatment of active duodenal ulcer. 2. Maintenance therapy for duodenal ulcer patients at reduced dosage after healing of acute ulcers. 3. The treatment of pathological hypersecretory conditions (e.g., Zollinger-Ellison syndrome and systemic mastocytosis). 4. Short-term treatment of active, benign gastric ulcer. 5. Treatment of gastroesophageal reflux disease (GERD). 6. Treatment of endoscopically diagnosed erosive esophagitis.

Concomitant antacids should be given as needed for pain relief to patients with active duodenal ulcer, active, benign gastric ulcer, hypersecretory states, GERD, and erosive esophagitis.

CONTRAINDICATIONS: Zantac[®] is contraindicated for patients known to have hypersensitivity to the drug or any of the ingredients.

PRECAUTIONS: General: 1. Symptomatic response to Zantac[®] therapy does not preclude the presence of gastric malignancy.

2. Since Zantac is excreted primarily by the kidney, dosage should be adjusted in patients with impaired renal function (see DOSAGE AND ADMINISTRATION). Caution should be observed in patients with hepatic dysfunction since Zantac is metabolized in the liver.

3. Rare reports suggest that Zantac may precipitate acute porphyric attacks in patients with acute porphyria. Zantac should therefore be avoided in patients with a history of acute porphyria.

Laboratory Tests: False-positive tests for urine protein with Multistix[®] may occur during Zantac therapy, and therefore testing with sulfosalicylic acid is recommended.

Drug Interactions: Although Zantac has been reported to bind weakly to cytochrome P-450 *in vitro*, recommended doses of the drug do not inhibit the action of the cytochrome P-450-linked oxygenase enzymes in the liver. However, there have been isolated reports of drug interactions that suggest that Zantac may affect the bioavailability of certain drugs by some mechanism as yet unidentified (e.g., a pH-dependent effect on absorption or a change in volume of distribution).

Increased or decreased prothrombin times have been reported during concurrent use of ranitidine and warfarin. However, in human pharmacokinetic studies with dosages of ranitidine up to 400 mg per day, no interaction occurred; ranitidine had no effect on warfarin clearance or prothrombin time. The possibility of an interaction with warfarin at dosages of ranitidine higher than 400 mg per day has not been investigated.

Carcinogenesis, Mutagenesis, Impairment of Fertility: There was no indication of tumorigenic or carcinogenic effects in life-span studies in mice and rats at dosages up to 2,000 mg/kg per day.

Ranitidine was not mutagenic in standard bacterial tests (*Salmonella*, *Escherichia coli*) for mutagenicity at concentrations up to the maximum recommended for these assays. In a dominant lethal assay, a single oral dose of 1,000 mg/kg to male rats was without effect on the outcome of two matings per week for the next 9 weeks.

Pregnancy, Teratogenic Effects, Pregnancy Category B: Reproduction studies have been performed in rats and rabbits at doses up to 160 times the human dose and have revealed no evidence of impaired fertility or harm to the fetus due to Zantac. There are, however, no adequate and well-controlled studies in pregnant women. Because animal reproduction studies are not always predictive of human response, this drug should be used during pregnancy only if clearly needed.

Nursing Mothers: Zantac is secreted in human milk. Caution should be exercised when Zantac is administered to a nursing mother.

Pediatric Use: Safety and effectiveness in children have not been established.

Use in Elderly Patients: Ulcer healing rates in elderly patients (65-82 years of age) were no different from those in younger age-groups. The incidence rates for adverse events and laboratory abnormalities were also not different from those seen in other age-groups.

ADVERSE REACTIONS: The following have been reported as events in clinical trials or in the routine management of patients treated with Zantac[®]. The relationship to Zantac therapy has been unclear in many cases. Headache, sometimes severe, seems to be related to Zantac administration.

Central Nervous System: Rarely, malaise, dizziness, somnolence, insomnia, and vertigo. Rare cases of reversible mental confusion, agitation, depression, and hallucinations have been reported, predominantly in severely ill elderly patients. Rare cases of reversible blurred vision suggestive of a change in accommodation have been reported. Rare reports of reversible involuntary motor disturbances have been received.

Cardiovascular: As with other H₂-blockers, rare reports of arrhythmias such as tachycardia, bradycardia, atrioventricular block, and premature ventricular beats.

Gastrointestinal: Constipation, diarrhea, nausea/vomiting, abdominal discomfort/pain, and rare reports of pancreatitis.

Hepatic: In normal volunteers, SGPT values were increased to at least twice the pretreatment levels in 6 of 12 subjects receiving 100 mg q.i.d. intravenously for 7 days, and in 4 of 24 subjects receiving 50 mg q.i.d. intravenously for 5 days. There have been occasional reports of hepatitis, hepatocellular or hepatocanalicular or mixed, with or without jaundice. In such circumstances, ranitidine should be immediately discontinued. These events are usually reversible, but in exceedingly rare circumstances death has occurred.

Musculoskeletal: Rare reports of arthralgias and myalgias.

Hematologic: Blood count changes (leukopenia, granulocytopenia, and thrombocytopenia) have occurred in a few patients. These were usually reversible. Rare cases of agranulocytosis, pancytopenia, sometimes with marrow hypoplasia, and aplastic anemia and exceedingly rare cases of acquired immune hemolytic anemia have been reported.

Endocrine: Controlled studies in animals and man have shown no stimulation of any pituitary hormone by Zantac and no antiandrogenic activity, and cimetidine-induced gynecomastia and impotence in hypersecretory patients have resolved when Zantac has been substituted. However, occasional cases of gynecomastia, impotence, and loss of libido have been reported in male patients receiving Zantac, but the incidence did not differ from that in the general population.

Integumentary: Rash, including rare cases suggestive of mild erythema multiforme, and, rarely, alopecia.

Other: Rare cases of hypersensitivity reactions (e.g., bronchospasm, fever, rash, eosinophilia), anaphylaxis, angioneurotic edema, and small increases in serum creatinine.

OVERDOSSAGE: There has been limited experience with overdosage. Reported acute ingestions of up to 18 g orally have been associated with transient adverse effects similar to those encountered in normal clinical experience (see ADVERSE REACTIONS). In addition, abnormalities of gait and hypotension have been reported.

When overdosage occurs, the usual measures to remove unabsorbed material from the gastrointestinal tract, clinical monitoring, and supportive therapy should be employed.

Studies in dogs receiving dosages of Zantac[®] in excess of 225 mg/kg per day have shown muscular tremors, vomiting, and rapid respiration. Single oral doses of 1,000 mg/kg in mice and rats were not lethal. Intravenous LD₅₀ values in mice and rats were 77 and 83 mg/kg, respectively.

DOSAGE AND ADMINISTRATION: (See complete prescribing information in Zantac[®] product labeling.)

Dosage Adjustment for Patients With Impaired Renal Function: On the basis of experience with a group of subjects with severely impaired renal function treated with Zantac, the recommended dosage in patients with a creatinine clearance less than 50 mL per minute is 150 mg or 10 mL (2 teaspoonsful equivalent to 150 mg of ranitidine) every 24 hours. Should the patient's condition require, the frequency of dosing may be increased to every 12 hours or even further with caution. Hemodialysis reduces the level of circulating ranitidine. Ideally, the dosing schedule should be adjusted so that the timing of a scheduled dose coincides with the end of hemodialysis.

 **Glaxo Pharmaceuticals**
DIVISION OF GLAXO INC.

July 1992
2145

Zantac[®] 150 Tablets/Zantac[®] 300 Tablets: Glaxo Pharmaceuticals, Research Triangle Park, NC 27709. Zantac[®] Syrup: Manufactured for Glaxo Pharmaceuticals, Research Triangle Park, NC 27709, by Roxane Laboratories, Inc., Columbus, OH 43216.

© Copyright 1992, Glaxo Inc. All rights reserved.

ZA285B

Printed in USA

July 1993

One Of A Kind

Zantac[®]
ranitidine HCl/Glaxo 150 mg and
300 mg tablets

**For The Treatment Of
Reflux Disease, Duodenal Ulcer Disease,
And Benign Gastric Ulcer**

Glaxo/ 

NORTH CAROLINA MEDICAL JOURNAL

For Doctors and their Patients

Published Monthly as the Official Organ of the North Carolina Medical Society

December 1993, Volume 54, Number 12

(ISSN 0029-2559)

EDITOR

Francis A. Neelon, M.D.
Durham
919-286-6409

DEPUTY EDITOR

Edward C. Halperin, M.D.

CONSULTING EDITOR

Eugene A. Stead, Jr., M.D.

ASSOCIATE EDITORS

Eben Alexander, Jr., M.D.
Winston-Salem
William B. Blythe, M.D.
Chapel Hill
F. Maxton Mauney, Jr., M.D.
Asheville
Walter J. Pories, M.D.
Greenville

MANAGING EDITOR

Jeanne C. Yohn
Durham
919-286-6410, fax: 919-286-9219

EDITORIAL ASSISTANT

Jane Whalen

SECTION EDITORS

Eugene W. Linfors, M.D.
Daniel J. Sexton, M.D.

EDITORIAL BOARD CHAIR

Margaret N. Harker, M.D.,
Morehead City

MEMBERS

Jay Arena, M.D.
Durham
William B. Blythe, M.D.
Chapel Hill
Jack Hughes, M.D.
Durham
Timothy W. Lane, M.D.
Greensboro
Eugene S. Mayer, M.D.
Chapel Hill
Walter J. Pories, M.D.
Greenville
Robert W. Prichard, M.D.
Winston-Salem
Mary J. Raab, M.D.
Greenville

The Society is not to be considered as endorsing the views and opinions advanced by authors of papers delivered at the Annual Meeting or published in the official publication of the Society.—*Constitution and Bylaws of the North Carolina Medical Society*. Chap. IV, Section 3, pg. 4.

NORTH CAROLINA MEDICAL JOURNAL

Box 3910, Duke University Medical Center, Durham NC 27710, (919-286-6410/fax: 919-286-9219), is owned and published by The North Carolina Medical Society under the direction of its Editorial Board. Copyright© 1993 The North Carolina Medical Society. Address manuscripts and communications regarding editorial matters, subscription rates, etc., to the Managing Editor at the Durham address listed above. Listed in *Index Medicus*. All advertisements are accepted subject to the approval of the Editorial Board of the *North Carolina Medical Journal*. The appearance of an advertisement in this publication does not constitute any endorsement of the subject or claims of the advertisement.

Advertising representatives: United Media Associates, Karl Messerly, 2001 W. Main St., Suite 202, Stamford CT 06902; 203-975-0606; and Don French, Box 2093, Cary NC 27511; 919-467-8515.

Printing: The Ovid Bell Press, Inc., 1201-05 Bluff St., Fulton MO 65251.

Annual subscription (12 issues): \$17 (plus 6% tax in NC = \$18.02). Single copies: \$2. Second-class postage paid at Raleigh NC 27601, and at additional mailing offices. **POSTMASTER: SEND ADDRESS CHANGES TO THE NORTH CAROLINA MEDICAL SOCIETY, 222 N. PERSON ST., RALEIGH NC 27601.**



SPECIALIZE IN AIR FORCE MEDICINE.

Become the dedicated physician you want to be while serving your country in today's Air Force. Discover the tremendous benefits of Air Force medicine. Talk to an Air Force medical program manager about the quality lifestyle, quality benefits and 30 days of vacation with pay per year that are part of a medical career with the Air Force. Find out how to qualify. Call

**USAF Health Professions
Toll Free
1-800-423-USAF**



North Carolina Medical Journal

FOR DOCTORS AND THEIR PATIENTS

Contents / December 1993, Volume 54, Number 12

On the cover: "The Adoration of the Magi" (anonymous, Dutch, 15th-16th c., oil with tempera) illustrates Dr. Dennis A. Greene's article on the medical and historical significance of gold, frankincense, and myrrh that appears on page 620. Painting property of the North Carolina Museum of Art, Raleigh. Used with permission.

THE HISTORY OF MEDICINE

- 620 Gold, Frankincense, Myrrh, and Medicine *Dennis A. Greene, M.D.*

THE PRACTICE OF MEDICINE

- 625 Review of Informal Interviews and Disciplinary Actions by the North Carolina Board of Medical Examiners, 1988-1991
Leslie P. Newton and Nicholas E. Stratas, M.D.

SCREENING FOR DISEASE

- 634 Screening for Colon Cancer: Is It Worth the Expense? *Jeffrey G. Wong, M.D., and John R. Feussner, M.D.*

HEALTH WATCH

- 641 Hospice: Care for the Terminally Ill *North Carolina Medical Society*

A PIECE OF A NORTH CAROLINA DOCTOR'S MIND

- 645 Gene Stead Looks at Doctoring *Eugene A. Stead, Jr., M.D.*

DOCTOR-PATIENT RELATIONSHIPS

- 652 Physicians With Good Communication Skills Are Made, Not Born *Jorge Carreras, M.D., FACEP*

FICTION BY PHYSICIANS

- 655 Home for a Bunny *David S. Pisetsky, M.D., Ph.D.*

PHYSICIANS AND THEIR FAMILIES

- 659 Concurrence of Occlusive Arteriosclerosis of the Lower Extremities and Coronary Artery Disease: And How a Surgeon and Son Have Shared Quality Time
Thomas W. Powell, Sr., M.D., with Thomas W. Powell, Jr.

INDICES

- 666 *North Carolina Medical Journal*, Volume 54: Year-End Recap of Articles by Author and Subject
-

BULLETIN BOARD

- | | | | |
|-----|---|-----|------------------------------|
| 616 | Letters to the Editor: The Limits of Federal Power, Doctors vs. Lawyers | 656 | Poem: "Ode to the Carotids" |
| 618 | Editorial <i>Francis A. Neelon, M.D.</i> | 658 | Subscription Form |
| 624 | Instructions for Authors | 662 | Continuing Medical Education |
| 640 | NCMS Plaque Honors Former Editorial Board Chair Charles W. Styron, M.D. | 663 | New Members |
| 654 | Holiday Footnote <i>Margaret N. Harker, M.D.</i> | 671 | Classified Advertisements |
| | | 672 | Aphorisms of the Month |
| | | 672 | Index to Advertisers |



Years From Now, This Patient Could Have A Claim. Make Sure You're Still Protected.

You never know when a claim will show up.

That's why it's important to be insured by a company that'll be around to protect you and your practice years down the road.

CNA has been protecting doctors against malpractice claims for over 30 continuous years. A record which demonstrates our dedication to providing continual coverage even in uncertain times.

For more information about medical malpractice insurance from the CNA Insurance Companies, contact your local agent or:

CNA Insurance Companies
Professional Liability Division, 19S
CNA Plaza
Chicago, IL 60685
(312) 822-5800

We're there when you need us most.



For All the Commitments You Make®

Program underwritten by Continental Casualty Company and CNA Casualty Company of California, two of the CNA Insurance Companies/CNA Plaza/Chicago, IL 60685.
CNA is a registered service mark of the CNA Financial Corporation, the parent company of the CNA Insurance Companies.

Letters to the Editor



The Limits of Federal Power: A Question of Liberty

To the Editor:

Although I am certain that Dr. Rogers believes in his views as strongly as I do, I find his statements concerning my article ("An Affordable Package of Medical Care for All Americans Is a Higher Goal than Absolute Freedom for Physicians: A Reply to Dr. Weaver," NC Med J 1993;54:466-7) much too dangerous to leave uncontested.

I do believe we need health care reform. I do not believe we need the Clinton plan. The Clinton plan is coercive, all controlling, and destructive not only for physicians, but for our patients as well. Moreover, it will not work. It will simply increase costs and lead to the fulfillment of the bureaucratic dream of further controls and eventual rationing.

Dr. Rogers says, "Like it or not, doctors are a social utility...." Oh, Mr. Jefferson, how far we have strayed. Dr. Rogers believes that asking to be allowed to bargain for the worth of one's labor in a free market system is asking for "absolute freedom." There is only one left field in a ball game, and Dr. Rogers has apparently chosen it.

When will physicians, including Dr. Rogers, learn that this is not simply a debate about health care reform? It is much more. This is a debate about the limits of federal power and this country's understanding of our individual liberties as guaranteed in the Constitution.

From time to time we all need reminding that our government derives its power from "the consent of the governed," not from its own inflated authority. Also, each of us is an individual with liberties granted not from the government, but from a higher authority—"In God We Trust." We are ends in ourselves, not objects to be used by the state for its ends. Once we view ourselves as "a

social utility," I believe we have reversed our relationship with our government and lost our chance to be truly professional.

As a servant of the state, would Dr. Rogers do the bidding of his master? Maybe the state would allow only certain drugs or certain people to be treated. After all, such decisions could be "good for the nation." Maybe he should tell medical students that they should become primary care physicians because, after all, the country needs them. In Dr. Rogers' world, after all, we would merely be means to be used by our government.

Dr. Rogers will certainly agree with the Clinton plan. It's just what this doctor ordered: state control not only of doctors, but patients. No more choices for anyone. We will be herded into those insurance cooperatives that most doctors mistakenly believe will give them more profit. Well, they might, for a while. But as Dr. Rogers loses any relationship with his patients, as they go from plan to plan at the coercion of the bureaucrat's financial manipulations, let me ask him: where has his profession gone? As he offers his services to patients who believe it is their "right" to have medical care, let me ask Dr. Rogers: where has the gratitude gone for the magnanimous acts of charity that are now simply the doctor's duty and the patient's due? Let me ask him to explain to medical students that the Bureaucrat will tell them what kind of doctor to become, where to practice, and how to "enjoy" medicine by doing exactly what the newest state official decides is necessary for the "general welfare."

No, Dr. Rogers, I am not a social utility, and I will never be a social utility. And if you really believe that you are one, I am sorry for you. I am sorry for your patients. You have lost an understanding of the most precious gift that this country has to offer. You have lost what East Germany and Russia are struggling to

possess. You have lost what those at Bunker Hill, Valley Forge, and the Alamo died for. You have lost liberty. This is something that I cannot sacrifice.

So I ask all who make the fatal miscalculation of endorsing the Clinton bureaucratic empowerment act of 1993 to remember the words of Benjamin Franklin, who said, "Those who would sacrifice liberty for temporary security deserve neither liberty nor security."

James P. Weaver, M.D.
4125 Ben Franklin Blvd., Suite 100
Durham, NC 27704

Doctors vs. Lawyers: The Debate Continues

To the Editor:

I'd like to follow up the dialogue between Dr. Bruce Cuncell and Ms. Tracy Lischer that appeared in the September *Journal* (NC Med J 54:432-433) with respect to our malpractice crisis.

Ms. Lischer's attitude clearly points out why we have a crisis in the first place. As she states, a malpractice suit is not pursued until a plaintiff's attorney can identify an expert witness who will testify that the medical care provided was "below the standard." However, so often, the care that is provided is not actually "below the standard," but simply represents a judgment call which reflects the choice of a "different" but appropriate management course. A perfect analogy would be for an individual to place a bet on a horse with the lowest odds in a given race, and then have that horse lose the race. The fact that the 2:1 horse was chosen and lost is not the result of a "below standard" judgment, and it is not a reason to be subjected to a malpractice suit. By similar reasoning, a "bad result" does not always mean malpractice.

Ms. Lischer states that plaintiff's expert witnesses "will not do this for money." Would Ms. Lischer like to ex-

Continued on page 662

We've been defending doctors since these were the state of the art.



Turn of the century trephine for cranial surgery and tonsillotome for removing tonsils.

These instruments were the best available at the turn of the century. So was our professional liability coverage for doctors. In fact, we pioneered the concept of professional protection in 1899 and have been providing this important service exclusively to doctors ever since.

You can be sure we'll always offer the most complete professional liability coverage you can carry. Plus the personal attention and claims prevention assistance you deserve.

For more information about Medical Protective coverage, contact your Medical Protective Company general agent.

TRICE
MEDICAL PROTECTIVE COMPANY
FORT WAYNE, INDIANA



Stuart Mitchelson
Suite 165, 11121 Carmel Commons Boulevard, Charlotte, NC 28226, (704) 541-8020 or (704) 541-8021, (800) 633-2285
Robert Dowdy, J. Michael Luther
Suite 230, 2000 Regency Parkway, Cary, NC 27511, (919) 467-8370, (800) 633-2285

Read Me!

Francis A. Neelon, M.D., editor, *North Carolina Medical Journal*

Last January, I laid down a "challenge to sometimes readers of the *Journal*" that they try doing what the Editor does—"read every word in every paper" that we published during 1993 (NC Med J 1993;54:34). Now we come to the end of the year. I do not know how many (if any) of you have risen to my challenge, but I invite those who did—even those of you who set out, but did not make it to the finish line—to write me about what you learned by the experience. I am interested in a personal account of your reaction to reading what amounts to a reasonable book's-worth of papers (we publish about 500 pages of editorial content per year) on a wide range of topics. I will read whatever you send in, and we will publish whatever seems appropriate.

Medicine—the profession of medical practice—lives now in perilous times. The very success of medical science, the almost daily reports of how "we" are able to manipulate the structure and function of cells and organs and bodies, the enviable incomes of doctors, the expectations of a society that still believes in taxes but is not so certain about the inevitability of death, have combined to make Medicine vulnerable. We are at great risk on two fronts: an external, political one that threatens us with control and dictation by governmental and financial agents; and an internal one that arises from the fractionalization and parochialism of doctors themselves.

We need to resist those well-intentioned individuals (especially those) outside Medicine who may end up destroying the profession in order to save it. In general, it is not hard to rally doctors to this cause; they perceive the dangers of submitting lamb-like to the will of others, and they are willing to band together to preserve the elements of our discipline. Organized medicine has appropriately responded to the real needs and inequities of society, and will continue to do so in ways that protect the essentials of medical practice.

Less clear is the threat from within—that Medicine will see itself not as a whole, but as a rather imperfect sum of its parts. Already there are individuals who view themselves as primarily "cardiologists" or "radiologists" or "thoracic surgeons" rather than as specially skilled members the larger profession of Medicine. We see practitioners whose approach seems to be "Does this patient have what I treat?" rather than "How can I help this sick person?" This seems to me the great threat—that doctors will fail to be doctors and become highly skilled (and therefore, of course, valuable) artisans. We need to remember what John Donne told us: no practitioner is an island.

Can reading the *North Carolina Medical Journal* help? I believe it can. Reading and reflecting on a multitude of topics helps avoid the insularity that leads to isolation and involution. This *Journal* is fortunate to have the support of a medical society that knows its mission. Doctors in other states have not been so lucky. In 1993, the *New York State Journal of Medicine* ceased publication after 92 years.¹ It was a widely cited (and profitable!) journal with a circulation of more than 25,000 readers, but it succumbed to the narrow views of the leadership of the Medical Society of the State of New York who think that the role of the medical society relates primarily to political action. They sacrificed their journal to this constricted vision. In recent years, other state medical societies have abandoned journal publication (Illinois, Ohio) or changed format to reportage by non-physicians of politically and economically pertinent material (Texas). These seemingly expeditious moves are sometimes made for financial reasons but more often because those responsible for the well-being and future of the involved medical societies lack a clear vision of what Medicine is, of what doctors really *do* (see Dr. Stead's report, page 645).

It is not particularly surprising to me that our leaders cannot say lucidly what they know in their hearts. That has never been easy for any of us. We doctors glide smoothly and seemingly without effort through the medium of medicine, like fish through water. Not that the work is easy, but the healing that we do and how we do it seems to "just happen." When pressed to say why patients feel better "just from seeing the doctor," we mumble or roll our eyes. But they do get better and we know it. The problem is that not everyone knows it, that those outside of medicine think the externals (the CT scans, the surgeries, the pills) are responsible for everything, not just a part. The great worry is that when physician leaders cannot say even to themselves what they know about the nature of Medicine, they run the risk of reducing our learned profession to a mere "craft or sullen art," of forsaking communication by doctors, for doctors, about doctoring that is what this *Journal* hopes to be about.

I hope that you, reader, will look on the *North Carolina Medical Journal* as I do—a precious resource and rare. I hope that you do find its pages interesting, provocative, informative. I hope, too, that you will write to let me know what you have seen between our covers in 1993. □

1 Imperato PJ. Demise of a peer-reviewed journal. *Lancet* 1993; 342:1160-1.



DEWEES ISLAND, A PRIVATE OCEANFRONT RETREAT TO CALL YOUR OWN... MINUTES FROM CHARLESTON, SC



Located only a nine-minute ferry ride north of the Isle of Palms lies one of the South's last barrier islands available for development...Dewees Island.

This boat-access island is unique in a variety of ways...a clean, wide beach stretches for over 2½ miles, development plans carefully protect the island's natural environment, transportation is restricted to electric vehicles, and a property owner's ferry runs round the clock. In addition, environmental covenants limit the

number of homes on the 1,206-acre island to only 150.

The location of the island is extraordinary...its pristine surroundings are perfect for fresh & saltwater fishing, crabbing, shrimping, and oystering, yet it's just minutes to downtown Charleston and the Charleston International Airport. It truly is an island like nowhere else in the world.

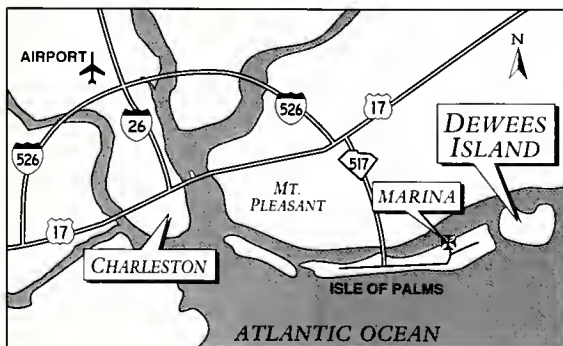
Come explore this private, oceanfront retreat...but don't wait too long. Over 30 percent of the available sites have been sold.

Prices start at \$150,000, with 2-acre oceanfront lots from \$315,000.

Call 1-800-444-7352 or (803) 886-8783.

*Pat Ross, Broker-In-Charge
Dewees Island Real Estate, Inc.*

Obtain the property report required by federal law and read it before signing anything. No federal agency has judged the merits or value, if any, of this property.



DEWEES ISLAND



A PRIVATE, OCEANFRONT
ISLAND RETREAT
DEDICATED TO
ENVIRONMENTAL PRESERVATION

Gold, Frankincense, Myrrh, and Medicine

Dennis A. Greene, M.D.

This is the season to remember the story of the three Magi, the Kings who brought gifts to the newborn Jesus in Bethlehem. A *Magus* was a Persian wise man, priest, magician, and ritual healer. The King James Bible version of the birth of Christ relates that three wise men (Magi) came from the East to Jerusalem looking for the Christ child, following the star that they had seen "in the east." In later narrations, the Magi became known as the Three Kings (Balthasar, Melchior, and Caspar) who represented the three regions of the known world encompassed by Christianity: Asia, Africa, and Europe.

Artists throughout the centuries have depicted the now-familiar scene, one version of which can be viewed in the collection of the North Carolina Museum of Art, in Raleigh. This 16th-century painting (see cover) by an unknown artist of the Dutch School of Haarlem, depicts the Madonna and Child receiving gifts from the three wise men. Painted in the manner of the Northern Renaissance, the painting shows a balanced composition and the Classical architectural style in its buildings. This is reminiscent of Roman dominion over Bethlehem, but it is certainly not a typical manger scene! The windmill in the upper left background clearly discloses the origins of the artist. The subject of this painting is of particular interest because of its link to medical practice in the ancient world. The three "wise men" brought gifts of gold, frankincense, and myrrh to the newborn child (Matthew 2:11). We know about gold, but what was the significance of the other offerings and from where did they come?

Incense in the Ancient World

Incense was known to all the ancient civilizations and used in rituals and prayers to the gods. Frank ("pure") incense and myrrh were the finest and most scarce, produced only in a small area of the Arabian peninsula. Because of their rarity and great cost, the gifts of the Magi were a sign of wealth and sacrifice. Beyond that, there is medical evidence that gold, frankincense,

and myrrh were important adjuncts to wound healing, used by many cultures and societies for thousands of years.

Frankincense (also known as *olibanum*) and myrrh are gum-resins, products of the sap of two trees that are geographically confined to a microclimatic zone that includes the northeastern part of Somalia and the southern part of the Arabian peninsula, including Yemen and the Sultanate of Oman. These trees are found in their natural state nowhere else in the world, and for millennia, Egypt, Greece, Rome, and the African Civilizations fought and traded for their valuable products.

Two genera of the family of Balsams (Burseraceae), *Boswellia* and *Commiphora*, contain trees that produce aromatic gum-resins. Approximately 25 species of *Boswellia* produce frankincense; *Boswellia sacra* and *carteri*, which produce the best frankincense, grow primarily in the southern Arabian peninsula. Myrrh comes from *Commiphora*, a large genus of some 150 species (formerly known as *Balsamo-dendron*), a few of which are good sources of myrrh (*Commiphora myrrh* is said to be the best). *Commiphora* species are more widespread in a westerly direction than *Boswellia* and are found in Oman, Yemen, and Somalia.

The sap of the trees is harvested by scoring the trunk with a sharp knife, cutting through the bark into the bundles of xylem and phloem. A resinous, opalescent fluid exudes from the cut to form a large, aromatic, milky ball that hardens. It is then broken off and cracked into smaller pieces for transport and sale. Eyewitness accounts of early methods of cultivation and use of the trees can be found in the writings of the Greek historian Herodotus (circa 484-425 BC) and the Greek botanist Theophrastus (circa 372-287 BC) and have not changed much to this day.¹

A kilogram of frankincense purchased from an Arabian marketplace or *souk* looks very much like a bag full of pale, irregular marbles. Placed in a censer and ignited, the incense burns slowly to produce a perfume (*per fumum*, from smoke). Myrrh is more golden and is gummy because of its high (17%) oil content. Both resins have an extremely sweet, flowery bouquet. That of myrrh is very long lived; still potent samples have been discovered in excavations of Egyptian tombs.

From Kaiser Permanente, 3100 Duraleigh Road, Raleigh 27612.

Frankincense and myrrh were known to the Sumerians, Babylonians, Egyptians, Assyrians, Hebrews, Greeks, Romans, and Chinese. According to Majno, the earliest written references date from 2500 BC when, during the Egyptian Fifth Dynasty, the royal purchase of 80,000 "measures" of myrrh was recorded.² In 1500 BC, during the reign of Queen Hatshepsut, an expedition from Thebes to the fabled "Land of Punt"—the region of modern Somalia and Yemen around the Gulf of Aden—brought frankincense and myrrh, and the resinous balsam trees that produce them, back to Egypt. However, the trees did not flourish in the more northern Egyptian climate.

Land and sea routes connecting Egypt and Arabia were known before 2000 BC. The trade routes that developed on both sides of the Red Sea depended on a reliable means of long-distance travel across the desert, along the Arabian coast, over the mountains, and across what is now the Sinai Peninsula. The camel, which was domesticated sometime between 2000 BC and 1000 BC proved to be the vehicle that allowed such trade to grow; donkey caravans were unable to penetrate inland because of the scarcity of water along the way.³ Some of these routes still exist today. For instance, the main highway that runs from the southwestern part of the Sultanate of Oman, parallel to the coastline through Yemen and north along the Red Sea, was once part of the old Incense Route.

39) tells that Joseph of Arimathea and Nicodemus, who removed Christ from the cross and prepared him for burial, followed the Jewish custom of wrapping the body in linens and applying aloes and myrrh.

Myrrh could also be ingested. It was used as a wine additive by the Egyptians, Greeks, and Romans, whose wine was usually diluted one to five parts with water. The myrrh added scent, but may also have retarded fermentation. Jesus was offered wine and myrrh as an anesthetic (Mark 15:23) during his crucifixion, but refused it.

As a medicine, myrrh was considered more versatile than frankincense and was used ubiquitously. Aulus Cornelius Celsus wrote in his eight-volume medical encyclopedia, *De Re Medicina* (25-35 AD), of using myrrh as an anti-inflammatory agent, as an antidote for certain poisons, and as treatment for headache, gout, diarrhea, throat ailments, jaundice, indigestion, fatigue, paralysis, hiccoughs, insect stings and bites, etc. The list goes on.^{1,4,5}

Cameron⁵ postulates that gold, being similar in color to the yellow ochre used by the Egyptians to prepare protective and cosmetic eye ointments, was associated with wound healing and may have been considered as valuable for its potential role in wound repair as it was a symbol of wealth. Holding a gold ball was thought to protect against disease.

“An interesting biblical reference (John 19:38-39) tells that Joseph of Arimathea and Nicodemus, who removed Christ from the cross and prepared him for burial, followed the Jewish custom of wrapping the body in linens and applying aloes and myrrh.”

Medicinal Uses of Frankincense, Myrrh, and Gold

What were frankincense and myrrh used for? Producing a pleasant scent was, and still is, an important objective, especially where odors of putrefaction, decay, spoilage, and lack of cleanliness prevail. That a pleasant bouquet would be associated with the "good" or "holy" and a revolting smell with the "bad" is easy to understand. So is the burning of incense as offerings to the gods, as when praying for a cure from a disease or relief from an infected wound. Rituals and incantations by priests and shamans merged religion with the earliest medical practices.

Like frankincense, myrrh can be burned for its perfumed smoke but, since it is oilier than frankincense, it can be dissolved in oils or water to take advantage of its texture and very long lasting scent. For instance, it was made into a skin lotion for use as a cleansing oil and perfume, for protecting and moisturizing in hot, dry climates, and for treating skin lesions.

Egyptian embalmers applied myrrh to the linens that were wrapped around mummies because it served both as a preservative and as a deodorant. Frankincense was placed in bags inside the body cavity. An interesting biblical reference (John 19:38-

Modern Studies

Several contemporary authors have studied the physiological properties of the gum-resins. Claeson and co-workers identified T-cadinol, an active anti-inflammatory compound in myrrh, which also has a spasmolytic effect on smooth muscle.⁶ More recently, Duwiejua et al found that gum-resins from both *Boswellia* and *Commiphora* species had significant anti-inflammatory activity, comparable to indomethacin and prednisolone in anti-inflammatory qualities.⁷ Myrrh has bacteriostatic properties as well, suppressing the growth of *Staphylococcus aureus* and other Gram-positive bacteria *in vitro*.² Considering the numerous anecdotes reporting successful treatment of various internal and dermatological maladies, these attributes are not surprising. Myrrh continues to be used as an ingredient in present-day mouthwashes, toothpastes, hair sprays, perfumes, and toiletries.

Michie and Cooper⁸ reported two pediatric cases from Jamaica and London in which frankincense and myrrh had been used. They pointed out that herbal remedies may still be recommended by the so-called "traditional healers" who practice in major metropolitan areas as well as in medically unsophisticated locales.

What's in a Name?

The given names Myron, Myra, Myrrha, and Muriel are said to be derived from the word Myrrh. In Greek they all refer to "the fragrant one." The first Myrrha was a young girl who, so it is said, developed an overpowering sexual attraction for her father. So much in love was she, and so distressed, that she pined away until she was near death. Her father had no idea of the reason for his teenager's depression. Myrrha, with the help of her maid, began to sneak into her father's bed at night, pretending to be someone else. After a few months, Myrrha became pregnant. Her father, discovering the awful secret and furious

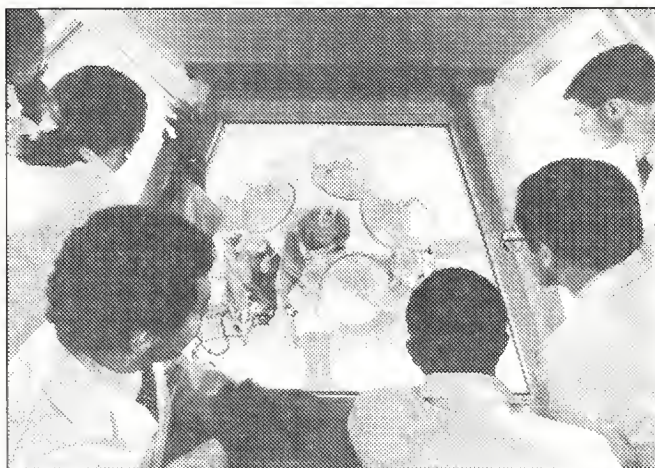
beyond grief, chased her from the house and into the woods, murder in his heart. At the last moment, Myrrha's cries and prayers to the gods were answered, and she was transformed into a myrrh tree. Her pregnancy continued *in arbo*, and resulted in the birth of Adonis, renowned for his beauty and as the lover of Aphrodite. Myrrha's fragrant tears, collected from the bark of her tree, became the substance that is the subject of this paper.

Gold is still popular, but frankincense and myrrh are no longer often laid before Kings. Nevertheless they have had an interesting and lively history and add fragrance to the annals of medicine. □

References

- 1 Groom H. Frankincense and Myrrh: A Study of the Arabian Incense Trade. London and New York: Longman Group Ltd., 1981.
- 2 Majno G. The Healing Hand. Cambridge, MA: Harvard University Press, 1977.
- 3 Nielsen K. Incense in Ancient Israel. Leiden: E.J. Brill, 1986.
- 4 Miller JH, Goodell HB. Frankincense and myrrh. Surgery, Gynecology and Obstetrics 1968;127:360-5.
- 5 Cameron A. Gold, frankincense and myrrh. Letter, J Royal Soc Med 1989;82:127.
- 6 Claeson P, Andersson R, Samuelsson G. T. Cadinol: a pharmacologically active constituent of scented myrrh: introductory pharmacological characterization and high field 1-H- and 13-C-NMR data. Planta Medica 1991;57:352-6.
- 7 Duwiejua M, Zeitlin IJ, Waterman PG, et al. Anti-inflammatory activity of resins from some species of the plant family Burseraceae. Planta Medica 1993;59:12-6.
- 8 Michie CA, Cooper E. Frankincense and myrrh as remedies in children. J Royal Soc Med 1991;84:602-4.

AN ARMY SCHOLARSHIP COULD HELP YOU THROUGH MEDICAL SCHOOL



The U.S. Army Health Professions Scholarship Program offers a unique opportunity for financial support to medical or osteopathy students. Financial support includes tuition, books, and other expenses required in a particular course.

For information concerning eligibility, pay, service obligation and application procedure, contact the Army Medical Department Personnel Counselor: Call Collect 804-771-2354

ARMY MEDICINE. BE ALL YOU CAN BE.®

"This isn't just fun technology..."

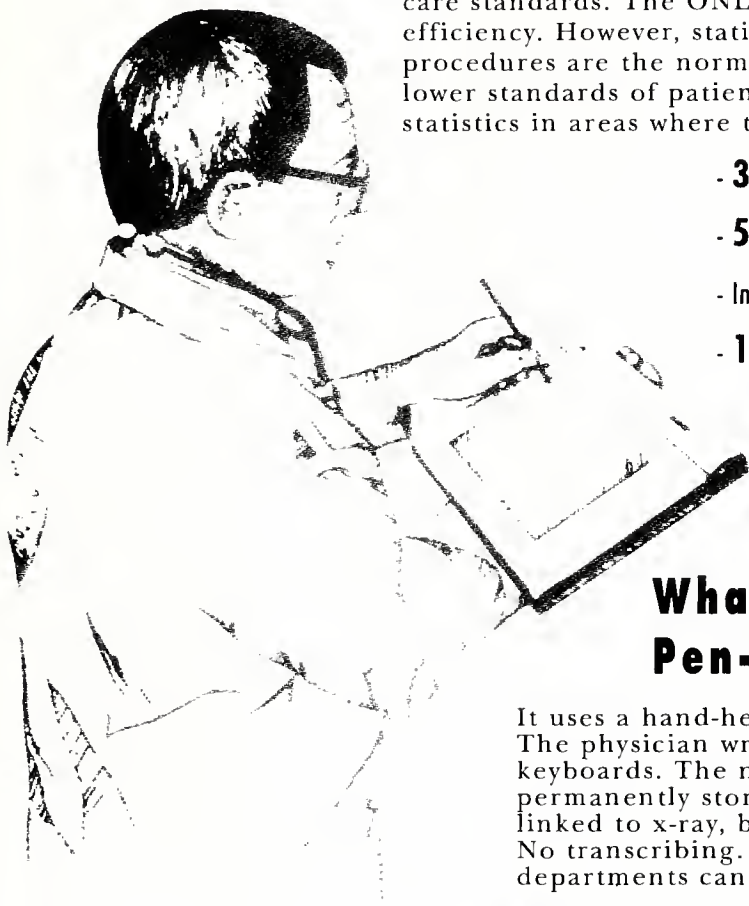
Kurt Buzard MD, FACS

Shearing Eye Institute, Las Vegas, NV

Pen-Based Medical Network User

These FAST changing times force physicians to see more patients for less compensation while struggling to maintain high patient care standards. The ONLY answer is to practice with higher efficiency. However, statistics demonstrate that outdated office procedures are the norm resulting in the CERTAINTY of lost time, lower standards of patient care and reduced revenue. Just a few statistics in areas where the Pen-Based Network can help:

- 38% of a doctor's time is spent writing charts.
- 50% of a nurse's time is spent writing charts.
- In 30% of patient visits, the medical record is inaccessible.
- 11% of laboratory tests have to be reordered because the results are not in the chart.



What is the Pen-Based Medical Network?

It uses a hand-held, light-weight, mobile, electronic chart. The physician writes directly on the electronic chart. No keyboards. The notes are captured automatically, permanently stored in the computer, easily accessible, and linked to x-ray, billing, etc. Same day automatic billing. No transcribing. Clerical help reduced. And all departments can communicate.

High Efficiency at Reasonable Cost!

Pen-Based Medical Network is a trademark of Medical Systems and Management, Inc.
Medical Billing Practice, Inc. is an Authorized Value Added Reseller of Pen-Based Medical Network™

Pen-Based Medical Network™

The Electronic Patient Chart

MBP Medical Billing Practice, Inc.
(800) 959 - 2538

San Francisco, CA 94117

35 Alma Street

(415) 665 - 1058

Instructions for Authors

The *North Carolina Medical Journal* is a medium for communication with and by members of the medical community of this state. The *Journal* will consider for publication articles relating to and illuminating medical science, practice, and history; editorials and opinion pieces; letters; personal accounts; poetry and whimsical musings; and photographs and drawings. Papers that relate to the present, past, or future practice of the health professions in North Carolina are especially pertinent, but manuscripts reflecting other perspectives or topics are welcomed. Prospective authors should feel free to discuss potential articles with the editors.

Manuscript Preparation

Authors should submit papers prepared according to the "Uniform Requirements for Manuscripts Submitted to Biomedical Journals" (N Engl J Med 1991;324:424-8) with the following exceptions: 1) no abstract is needed for an article; 2) no running title is needed; and 3) measurements must be reported in metric units, but use of the International System of Units (SI) is optional.

To summarize major elements: Submit two copies of text (including Letters to the Editor), double-spaced typed with one-inch margins, on one side of each sheet of paper. Title page should include addresses, and telephone and facsimile numbers of the corresponding author. Authors may submit a cover letter and a 3 1/2- or 5 1/4-inch floppy computer disc containing the text written in MS DOS compatible format (WordPerfect, Microsoft Word, Displaywrite, or ASCII).

Submit illustrations, in duplicate, in the form of high-quality color 35mm slides or 5-by-7-inch or 8-by-10-inch glossy photographs, or as black-and-white glossy prints (5-by-7-inch or 8-by-10-inch). Label all illustrations with author's name, number them sequentially according to their position in the text, and indicate the orientation of the images, if necessary. *Do not write directly on the backs of prints.* This can damage them.

Type figure legends, double-spaced, on a separate sheet of paper. Tables should be typed, double-spaced, one to a single sheet of paper. All tables must have titles and consecutive Arabic numbers.

Keep references to a minimum (no more than 15, preferably 10 or fewer), retaining those that document

important points. The "Uniform Requirements" cited above contain the format for references. Authors are responsible for the accuracy and pertinence of all citations.

Avoid abbreviations entirely if possible; keep them to a minimum if not. When used, completely define abbreviations at the first point of usage in the text.

Manuscript Review and Editing

A medically qualified editor reads all manuscripts and, in most instances, sends them out for further review by one or more other members of the North Carolina Medical Society. Authors' cover letters should include a line that states that their submitted manuscripts are not under consideration for publication elsewhere. Decisions to publish or not are made by the editors, advised by the peer reviewers.

We encourage a relatively informal writing style since we believe this improves communication. Imagine yourself talking with your unseen audience—as long as this doesn't lead you to scientific or linguistic inaccuracy. Be brief, clear, simple, and precise.

We edit accepted manuscripts for clarity, style, and conciseness. Except for letters, authors receive a copy of the edited manuscript for their review and approval before publication. Manuscripts not accepted will not be returned.

Authors retain copyright to articles published in the *North Carolina Medical Journal*, but the North Carolina Medical Society copyrights the contents of each entire issue. Requests for permission to reprint all or any part of a published article must be submitted in writing to the address below and negotiated with the author and editor jointly. Reprinted material must carry a credit line identifying that it appeared in the *North Carolina Medical Journal*.

Submissions

Address manuscripts and all other correspondence to:

Editor, North Carolina Medical Journal
Box 3910, DUMC
Durham, NC 27710
Telephone 919/286-6410
Fax 919/286-9219

Review of Informal Interviews and Disciplinary Actions by the North Carolina Board of Medical Examiners, 1988-1991

Leslie P. Newton and Nicholas E. Stratas, M.D.

The Board of Medical Examiners is charged with regulating the practice of medicine for the benefit and protection of the people of North Carolina.¹ It is committed to the highest standards of medical care and, through its licensing, investigative, and disciplinary processes, monitors, controls and, when possible, rehabilitates physicians who might otherwise be of harm to the public.

The Board was established in 1859. It has eight members—seven physicians nominated by the North Carolina Medical Society and one public member—all appointed by the Governor. No member may serve more than two complete consecutive three-year terms. Recently the legislature expanded the membership to 12—seven physicians, three public members, one physician extender, and one other member selected by the Governor.

The Board receives about 2,000 requests for licensure application each year; after completion of their application and credentials, about 1,300 applicants actually are scheduled for personal interview.

The Board schedules six meetings a year. The meetings generally last four days and deal with responses to and action on licensure interviews, complaints, reports, investigations, communications from physicians, patient medical record reviews, and informal, non-public physician interviews as well as policy formulation regarding physician extenders, emergency medical services, and the practice of medicine. Licensure interviews, informal interviews, committee meetings, or public hearings may be held at additional meetings.

The Surveillance of Medical Practice

A variety of mechanisms alert the Board of Medical Examiners to potential problems in the personal and professional behavior of physicians: routine monitoring by the Board's investigators, complaints from the public² or other health care professionals, reports of law enforcement agencies, mandatory reports from hospitals and liability carriers, and by communication from medical boards of other states. After reviewing reports and considering any information gathered, the Board may take any number of

actions: 1) The report may be accepted as information with no need for further action other than monitoring. 2) The Board may request further investigation. 3) It may write the physician outlining concerns and recommending the methods for resolving those concerns. 4) The physician may be directed to accomplish (and document) some activity such as obtaining further educational credits or submitting to a physical or psychiatric evaluation. 5) The physician may be referred to the Physicians Health Program (PHP) for evaluation, recommendation, and treatment. 6) The Board may request surrender of or revoke all or part of restricted drug prescription privileges. 7) The physician may be asked to consider retirement. 8) The Board may accept voluntary surrender of a physician's medical license in lieu of further disciplinary action. 9) The physician may be invited to an informal interview by the Board to discuss matters of concern. The outcome of the interview may include any of these additional actions: 1) The physician may agree to a consent order, a written agreement between physician and the Board with stipulations that must be met. 2) The Board may privately express its concern to the physician. 3) The Board may limit the physician's license (by date, geo-

Ms. Newton is director, Public Affairs Department, and Dr. Stratas is past president (1992-93) of the North Carolina Board of Medical Examiners, 1203 Front St., Raleigh 27609.

graphic area, practice location). 4) The physician's license to practice may be summarily suspended (used only where there is imminent danger to the public). 5) The Board may prefer formal charges and hold a public hearing to determine whether there is sufficient evidence to support any charges brought. If there is, then the Board issues a public order (a formal reprimand, a suspension of licensure, probation with conditions, or revocation of license).

As a step in its investigative and disciplinary processes, the Board often interviews licensed physicians on an informal basis. An interview offers the physician an opportunity to discuss and rectify any matters of concern to the Board, often without need for formal disciplinary action. Informal interviews also provide a method by which the Board can monitor physicians' activities and behaviors. The physician to be interviewed is generally invited by letter and is advised of the right to bring an attorney. If a formal action results from the informal hearing, that action then becomes public. Interviews are conducted either by the full Board or by a subcommittee which then makes a recommendation to the full Board. The material gathered at the interview is confidential but may be used as evidence if charges and a formal hearing eventuate.

During the period 1988-1991 the Board reviewed 2,257 initial investigative reports, complaints, and malpractice reports of which 668 (almost 30%) led to informal interview and 174 (nearly 8%), to formal disciplinary action. We present here our review of the informal interviews and disciplinary actions conducted between 1988-1991 to determine the practice specialty, age, gender, and practice location of those who came before the

Board, to identify the problem areas that surfaced most frequently, and to begin the process of deciding how to prevent future problems, not only for individual practitioners, but for the medical community in general.

Reasons for Interviews

Between 1988-1991, the Board conducted 1,078 informal interviews with 668 individuals. Physicians are called before the Board to discuss a number of issues, and our preliminary categories of reasons for interview are shown in Table 1. Since informal interviews are used to monitor physicians as well as to gather information for new investigations, some individuals were invited more than once per year; we did not tabulate repeat visits for a single issue.

Table 2 illustrates the numbers of physicians

called before the Board and the issue discussed with each. We comment on each of these issues, grouping them into the larger categories of: "the prescribing of drugs," "behavioral problems of the physician," and "capacity to practice."

Table 1. Questions, allegations, and problems for which physicians were summoned to informal interview by the Board of Medical Examiners

Inappropriate or excessive prescription of controlled substances
Substance abuse
Questions of medical competence
Malpractice suits
Psychiatric problems of the physician
Inadequate supervision of physician extenders
Patient complaints
Sexual misconduct with patients
Loss or restriction of hospital privileges
Self-prescribing by the physician
Inadequate or outdated educational status
Felony convictions
Unlicensed practice

Table 2. Issues prompting informal interviews and disciplinary action by the Board of Medical Examiners, 1988-1991

Issue	Number of Interviews	Number of actions
Inappropriate prescribing	203 (30%)	52 (30%)
Substance abuse	186 (28%)	46 (26%)
Medical competence	52 (8%)	23 (13%)
Malpractice	42 (6%)	0
Psychiatric condition	39 (6%)	17 (10%)
Supervising physician extenders	31 (5%)	3 (2%)
Patient complaints	26 (4%)	0
Sexual misconduct	24 (4%)	18 (10%)
Change in hospital privileges	18 (3%)	0
Self-prescribing	16 (2%)	1 (1%)
Insufficient medical education	12 (2%)	1 (1%)
Felony conviction	11 (2%)	12 (7%)
Unlicensed practice	8 (1%)	1 (1%)
Total	668 (100%)	174 (100%)

The Prescribing of Drugs

1) Inappropriate prescribing of controlled substances was the problem most frequently encountered by the Board. This included prescribing inordinate amounts of a drug, prescribing on demand, prescribing without ever seeing the patient, prescribing without medical need or reason, and prescribing without supporting documentation in patient charts. Most physicians, after being confronted with the Board's concerns during the interview, updated their education in pharmacotherapeutics and thereafter prescribed and documented more appropriately. Problems with irregular prescribing practices can be avoided by thought and foresight on the part of the treating physician and by doctor-to-doctor communication when multiple physicians treat one patient. The Board has published a number of articles (*North Carolina Board of Medical Examiners Bulletin*) and position statements (see the *1993 North Carolina Board of Medical Examiners Information Brochure*) on the regulation of prescribing (see Appendix, page 632). Adherence to these guidelines can help prevent problems in this area.

2) Self-prescribing (physicians writing prescriptions for themselves) may come to light in the course of routine pharmacy surveys. Prescribing for oneself is not illegal, but the Board discourages this practice because it can lead to problems. Usually the Board sends the physician a letter of concern and provides a copy of the Board's position statement on the treatment of and prescribing for family members. Physicians are invited for a personal interview when there is continued self-prescribing or when the quantity and type of medication indicate a potential for abuse. Physicians are encouraged to have regular doctors for themselves and for the members of their families—just as they would recommend for their patients.

Behavioral Problems of the Physician

1) Impairment due to substance abuse (alcohol or other drugs) by the physician is a major issue. The development and

implementation of the Physicians Health Program provides help for impaired physicians, and close monitoring by both PHP and the Board often allows those doctors to continue to practice medicine without endangering patients in any way. When impaired physicians come to the attention of the Board through the investigative process, they are referred to PHP for evaluation and treatment recommendations. If the situation is already critical before it comes to the Board's attention, it may be necessary to request surrender of the doctor's medical license or an agreement to not practice medicine until treatment is in progress, recovery is well under way, and the Board is able to review evaluations and interview the physician. Permission may then be granted to practice, usually in a controlled and limited setting. If physicians are suspected of being impaired, they or family members or other health care professionals are encouraged to contact PHP, so that evaluation and treatment can be obtained before serious problems arise. Early treatment may preclude the need for formal Board action and in many cases physicians may remain anonymous while working through a treatment contract with PHP.

2) Psychiatric impairment or psychiatric illness in a physician is an extremely sensitive issue, but one the Board deals with on a fairly regular basis. Obviously, individuals incapable of safely practicing medicine are not allowed to do so, but most physicians suffering from psychiatric illness can practice without endangering their patients. They are monitored by the Board (and by PHP), and must submit evaluations for the Board's review.

3) Sexual misconduct is the problem most likely to culminate in formal disciplinary action since this category includes events of immediate and present danger to patients. If physicians cooperate (for example, by enrolling in PHP), the Board urges prompt psychosexual assessment and immediate treatment. When evidence points clearly to sexual misconduct, disciplinary action is taken, and in some cases the Board initiates formal charges

and moves to a formal public hearing without any informal interview. The Board has *no* tolerance of physicians who engage in sexual activity with patients. Sexual abuse of a patient is one of the most destructive activities in which a physician can engage; the Board encourages anyone who is aware of such activity to report it immediately.

4) Complaints by patients or patients' family members against physicians are reasons for informal interview if, after Board review of written documents from the complainant and the physician, there is need to clarify and resolve the issue. Interviews can occur after one complaint, but more often after the Board has received multiple complaints over a short period of time. The number of complaints increased from 115 in 1988 to 239 in 1991; many relate to matters in which the Board finds no basis for disciplinary action; often these problems could have been avoided by better personal communication on the part of the physician in explaining to the patient why certain actions were taken. The Board encourages open and thoughtful communication between physicians, their staffs, patients, and the patients' families.

5) Conviction of having committed a felony warrants automatic revocation of a physician's medical license. Depending on the circumstances, the conviction may not result in a license revocation, but some type of formal disciplinary action will always be taken. The interviews made by the Board during the study period were conducted to monitor prior disciplinary actions or as an initial discussion with the physician after an indictment and before a conviction.

Capacity to Practice

1) Medical competency covers a broad spectrum of issues including: poor quality or questionable care, failure to provide care, unorthodox medical practices, practicing outside the field of training, ethical lapses, impaired functioning not caused by substance abuse, malpractice suits, excessive patient complaints, limi-

tation or removal of hospital privileges, and inadequate education. All are matters of concern when competence is being considered, and the frequency with which physicians are invited to discuss such issues has risen from 6 in 1988, to 11 in 1989, 13 in 1990, and 22 in 1991. This trend probably reflects the Board's increasing sensitivity to these issues. The Board uses several methods to assess a physician's competence including personal interviews, written examination, review of patient records by experts in the physician's specialty, and evaluation by programs designed to assess clinical competence and make recommendations for remedial training. One such program is the Physicians Competence Evaluation and Remediation Program (PCERP), which was developed at East Carolina

University for this purpose. The PCERP is available primarily to physicians on a self-referral basis in which case their identity is not communicated to the Board.

2) *Malpractice settlements or awards* made on behalf of physicians must be reported by liability carriers to the Board for its review. Physicians are often invited to appear before the Board to discuss an individual case, how their practice may have changed as a result of the incident, and how they plan to prevent recurrence if confronted with a similar situation in the future. The number of physicians invited to discuss malpractice cases increased from 1 in 1988, to 5 in 1989, 16 in 1990, and 20 in 1991. This rise may reflect both the initiation of a statutory reporting requirement in 1987

(with an attendant increase in the number of reports received by the Board from 64 in 1988 to 257 in 1991) and a modestly increased number of licensed physicians (from 17,517 in 1988 to 20,806 by the end of 1991).

3) *Inadequate supervision of physician extenders* (physician assistants, nurse practitioners) is another issue the Board frequently confronts. Both the supervising physician and the extender may be invited for an interview before recommendations regarding improved supervision are given. Relatively few disciplinary actions have been taken in these cases, especially when no patient harm has occurred and the potential for harm is alleviated by the physician's acceptance of the Board's recommendations.

Table 3. Specialty distribution of physicians called for informal interview or disciplined by the Board of Medical Examiners, 1988-1991

	Number licensed in specialty in 1991	Number Interviewed 1988-91	Probability of Interview*	Number disciplined 1988-91	Probability of disciplinary action*
Anesthesiology	1,011	21	±	7	±
Emergency Med	832	49	++	14	±
Family Practice	2,352	179	++	46	++
General Practice	439	67	++	23	++
Internal Medicine†	4,713	81	—	17	—
Ob/Gyn	1,334	47	±	8	±
Ophthalmology	582	11	±	2	±
Pathology	738	2	—	1	±
Pediatrics	1,429	19	—	4	±
Psychiatry	1,452	72	++	25	++
Radiology§	1,379	9	—	3	—
Surgery‡	3,201	103	±	21	±
Others	495	8	±	3	±
Total	19,957	668		174	

* Probability, determined by χ^2 test of odds ratios, that members of each discipline were *more likely* (++) , *less likely* (—), or *equally likely* (±) to be interviewed or disciplined. Probability values less than 0.001 were considered significant (— or ++). See Figs. 1 and 2, page 631, for exact odds ratios and confidence limits.

† Internal Medicine includes Allergy and Immunology, Dermatology, and Neurology.

§ Radiology includes Nuclear Medicine.

‡ Surgery includes Colon and Rectal Surgery, Neurosurgery, Orthopaedics, Otolaryngology, Plastic Surgery, Thoracic Surgery, and Urology.

4) *Changes in hospital staff privileges* (revocation or limitation of privileges) must be reported to the Board by hospitals and other health care institutions. When a hospital takes disciplinary action or revokes or restricts privileges, a report is sent to the Board's Investigative Department. After details are gathered, the physician may be invited to an informal interview. Depending on the nature and severity of the problem, the Board may ask the physician to undergo a competency evaluation or to obtain supplementary education in specific areas.

5) *Inadequate medical education* is a term used to cover deficiencies of either continuing medical education or of initial training. The 12 interviews conducted during 1988-1991 were to follow up prior disciplinary actions or to monitor new licensees. There is no required amount of continuing medical education a physician must obtain within a given period of time; however, the Board's position is that its licensees should have at least 150 hours of CME every three years or receive the AMA Physician's Recognition Award. Most of these CME hours should be applicable to the doctor's practice.

6) *Unlicensed practice* refers to instances in which duly licensed physicians allowed unlicensed individuals, or untrained or unapproved physician extenders, to practice medicine, or in which a trained physician practiced medicine in North Carolina before being properly licensed to do so.

Disciplinary Actions

We also reviewed the formal disciplinary actions taken during 1988-1991 and the issues that prompted them (Table 2, page 626). While informal interviews are confidential, formal actions are public. They consist of consent orders, charges that lead to a formal hearing, orders resulting from the hearing, and voluntary surrenders of license in lieu of further action by the Board. In general, formal hearings take place before a majority of Board

members or are referred to an administrative law judge who hears the case and makes recommendations to the Board. A formal hearing can be requested by a physician who has been denied issuance or reinstatement of a medical license, but we have not included such license-related activities themselves in this review. As with interviews, we counted only once all actions related to one issue (for example, a case of sexual misconduct involving a summary suspension, a notice of charges, and a license revocation was counted as one action, not three).

Who Gets Interviewed—A Close Look at 1991

In order to get a better idea of the demographic characteristics of our interviewees, we looked closely at those seen during a single year, 1991. The ages of physicians interviewed in 1991 ranged from 26 to 85: 32 were younger than 40 years old, 66 were aged 40-49, 49 were 50-59, 38 were 60-69, and 13 were 70 or older. We found that, with a few exceptions, the relative frequency of problems for which they were interviewed differed only slightly across age groups. Physicians in their late 20s and 30s were seen most often for problems with substance abuse and with prescribing practices, next most often for psychiatric difficulties and malpractice suits, then for felonies. Those in their 40s had problems most often with substance abuse, next most often with prescribing practices, and then, in equal percentages, with sexual misconduct, competency issues, malpractice suits, and physician extender supervision. Those in their 50s had problems with prescribing practices, substance abuse, malpractice suits, and competency, and those in their 60s had problems with prescribing practices, substance abuse, and competency issues. Physicians in their 70s and 80s had problems with prescribing practices and medical competency.

We interviewed 198 physicians in 1991; 125 (63%) came from rural areas and 73 (37%) from urban areas (population of 75,000 or more). According to

1990 statistics from the Health Services Research Center in Chapel Hill, there are 3,025 physicians and 2,871,048 people living in rural areas, and 7,415 physicians and 3,757,589 people in urban areas. While fewer than half as many physicians lived in rural areas, almost twice as many rural physicians were seen by the Board. To assess the likelihood that a rural physician would be interviewed compared to an urban physician, we calculated the odds ratio (OR). An odds ratio provides an estimate of the relative likelihood that a member of one group would be called before or disciplined by the Board compared to the likelihood for all other physicians except members of that group. An OR of 1.0 means that members of the group have neither an increased or decreased likelihood of interview or action; and an OR of less than 1.0 implies a less than average likelihood; an OR greater than 1.0 implies greater likelihood. In our sample the OR that a rural physician would be interviewed was 4.3; these physicians were 4.3 times as likely to be interviewed as an urban physician. The disparity in rates of interview of rural and urban physicians may reflect the way doctors come to the attention of the Board, the psychological hazards of practice in an isolated setting, or the type of physician who chooses to practice in rural areas. The most glaring discrepancy between rural and urban physicians was in problems with prescribing; 85% of the physicians interviewed by the Board in 1991 for questionable prescribing practices came from rural areas. The distribution of competency issues and substance abuse problems was consistent with the larger number of rural physicians interviewed. More problems related to physician extenders were noted with rural physicians, and more malpractice and patient complaint problems with urban physicians. All four felonies noted in 1991 were committed by rural physicians.

Women made up approximately 16% of the total physician population (as of January 1992). Of the 668 physicians interviewed during 1988-1991, only 37 (6%) were women, giving an odds ratio for males to females of 3.3. Male physi-

Commentary

By John T. Dees, M.D., family physician, Burgaw

This article by Ms. Newton and Dr. Stratas is interesting and impressive. Dr. Stratas has performed exemplary service for the citizens of North Carolina and for its physicians during his terms on the Board of Medical Examiners. He does us a further service by reporting to the profession the inner workings of the Board in this article and two other reports in the January 1992 *Journal*. My tenure as president-elect and president of the Medical Society gave me an excellent opportunity to learn about the Board's activities and to learn about the objectives and actions of the Board. The Board members of my acquaintance during the past several years are physicians of high personal integrity and unimpeachable professional ethics. I have no doubt that they serve us well and fairly.

I am impressed by the fact that 668 physicians were interviewed and of these, 174 received some disciplinary action. This seems like a relatively small number—some groups may think too small—considering the high-tech, fast-paced standards in today's medical practices. In their closer look at the year 1991, Newton and Stratas found that slightly more than 12,000 of over 19,000 registrants were actively practicing in North Carolina, but only 198 were interviewed and a smaller number disciplined. I am impressed and pleased that the numbers were not larger because I know that the Board and its investigative arm do a good job in ferreting out deficiencies in medical practitioners.

As a family physician practicing in a rural area I am naturally concerned that the number of rural physicians seen by the Board is almost twice that of urban physicians. It is also disconcerting to me that, except for general practitioners, family practitioners are the specialty most likely to be interviewed and disciplined. The most common fault among family practitioners related to problems with prescribing practices, approximately 2 to 1 over the next problem, substance abuse. It is small consolation that my fellow family physicians were not as likely (statistically at least) to have problems with substance abuse and psychiatric problems as were emergency room physicians and psychiatrists. Although I am concerned about these numbers, we should not despair for the family practitioners and general practitioners because prescribing practices should be fairly easy to improve upon. I do worry about substance abuse, psychiatric difficulties, and sexual misconduct wherever they are found in any specialty. The authors' conjecture that rural practice predisposes to problems because of such things as minimal training (in the case of general practitioners), remoteness of location, psychological hazards, and the "type of physicians who choose to practice in rural areas" are issues that should be of serious concern to all of us. We will need further exploration by the Board and others to decide which, if any, of these are true risk factors.

The findings of Newton and Stratas are a valuable start. If we are interested in correcting the problems we need to examine each case carefully to determine possible causal factors. This could be done with the help of the North Carolina Academy of Family Physicians working with members and staff of the Board of Medical Examiners. Complete confidentiality would have to be maintained, but the cases of the 179 family practitioners could be reviewed to determine their educational/training levels, size of the community in which they practice, their hospital staff membership and activity, their association with or isolation from peers, etc. Such a study could help us determine what we might do to improve the situation. It is important to undertake such an investigation since our legislature and medical schools are at a point of embarking on new endeavors to produce generalist physicians for all of North Carolina. We should try to remove all the "booby traps" we can find before we send these new physicians onto that battlefield. □

ciens were disciplined at a higher rate than female, with 7 actions (4% of the total) involving women as compared to 167 (96%) for men (OR = 4.7).

Interview and Disciplinary Action by Specialty

Table 3, page 628, shows the distribution by specialty of the 19,957 physicians holding full or temporary licenses to practice medicine in North Carolina as of January 1991. The number of physicians licensed to practice changed somewhat during our study period, but the distribution of physicians by specialty did not change appreciably. Approximately 65% of licensees resided in North Carolina and 35% out of state. Our calculations are based on the total number of registrants because many out-of-state residents practice in North Carolina as locum tenens or while vacationing in the state, and because approximately 7% of informal interviews in 1988-1991 concerned physicians residing outside the state (including those with temporary licenses who were being monitored, and locum tenens practitioners or those from bordering states who had problems relating to North Carolina patients).

Table 3 gives the number of physicians in each specialty interviewed and disciplined during 1988-1991. Figures 1 and 2, at right, indicate the odds ratio (OR) for interview and disciplinary action for each specialty using the specialty distribution of 1991 for these calculations. To assure that the odds ratios as calculated are not due to chance, we calculated 95% confidence intervals and chi square statistics. The 95% confidence interval is a statistical estimate that the OR, if calculated from 100 different samples of physicians, would fall within the given bounds 95 times; the χ^2 statistic gives the probability (p) that the calculated OR is different from 1.00. Because of the large number of calculations made, we considered only p values less than 0.01 to be significant. The odds ratios for four specialties (general practice, family practice, emergency medicine, and psy-

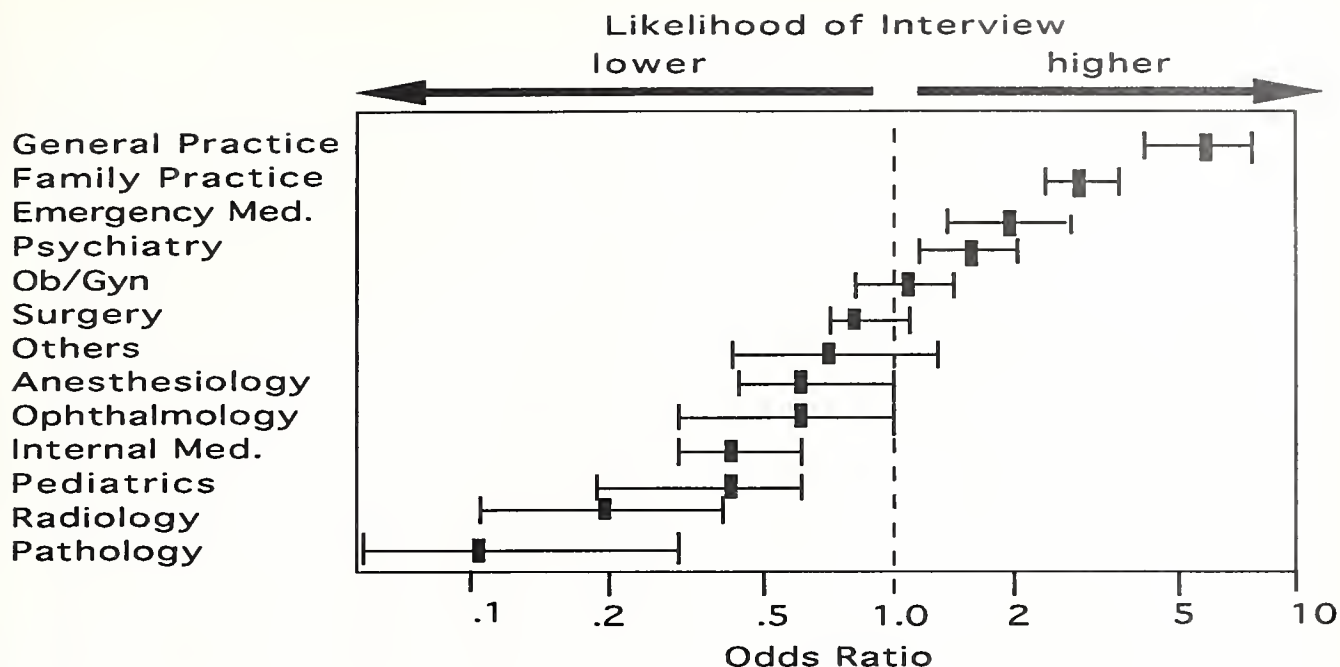


Fig. 1: The relative likelihood for a member of a specialty to be interviewed is shown by the odds ratios. Odds ratios less than 1.0 mean a member of the specialty was less likely to be interviewed; those greater than 1.0 mean those members were more likely to be interviewed. When 95% confidence intervals (shown as horizontal lines) touch or cross 1.0, then the odds ratio was not significantly different from 1.0.

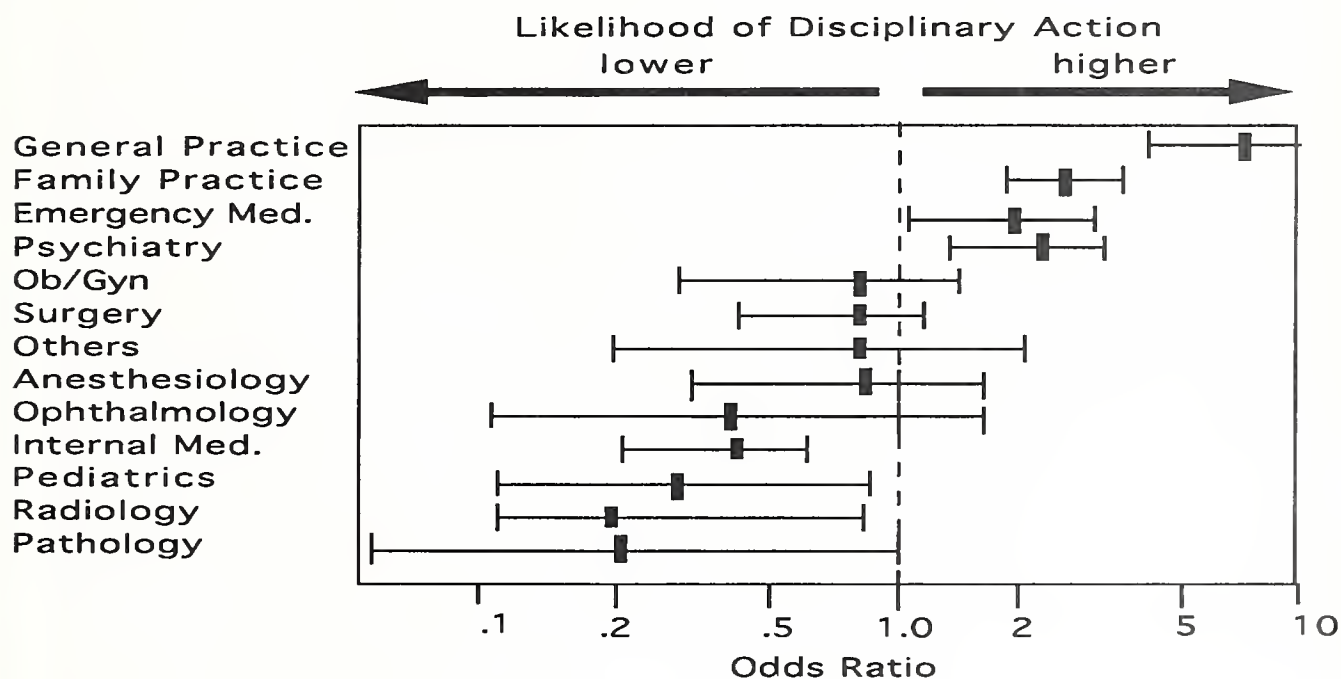


Fig. 2: The relative likelihood for a member of a specialty to be disciplined is shown by the odds ratios. Odds ratios less than 1.0 mean a member of the specialty was less likely to be disciplined; those greater than 1.0 mean those members were more likely to be disciplined. When 95% confidence intervals (shown as horizontal lines) touch or cross 1.0, then the odds ratio was not significantly different from 1.0.

chiatry) were significantly above 1.00, and those of four specialties (internal medicine, pathology, pediatrics, and radiology) were significantly lower.

General Practitioners, although representing only 2% of the physicians licensed in 1991, were the group most likely to become involved with the Board. They had an OR of 5.7 of being interviewed and 7.1 of being disciplined. The problem areas concerned prescription practices (55% of interviews and 43% of disciplinary actions) and substance abuse (18% of interviews and 26% of disciplinary actions). No other problems accounted for more than 10% of interviews or actions. The reasons that general practitioners are interviewed and disciplined at such high rates are not certain. It may be that minimal training, practice without associates, and frequent practice without hospital privileges make these doctors more vulnerable.

Family Practitioners comprised the numerically largest group called before the Board or involved in disciplinary action. Given the large number of family practitioners in the state (2,352 in 1991) and the broad range of problems they treat, it is not unusual that large numbers might come before the Board. As with general practitioners, the two most frequent problems related to prescription practices (51% of interviews and 46% of disciplinary actions) and substance abuse (26% of interviews and 24% of disciplinary actions). Despite this similarity and that of practice mode, the odds ratios that family practitioners would be interviewed or disciplined (2.9 and 2.7, respectively) were lower than those of general practitioners, possibly reflecting the additional training required for family practice, the continuing education and required involvement in the American Academy of Family Practice.

Emergency Medicine Physicians had an increased likelihood of being interviewed and disciplined (OR 1.9 and 2.0, respectively). The most common reasons for interview were problems with substance abuse (39%), prescription practice (18%), and psychiatric difficulties (16%). Disciplinary actions related to competence (29%) and substance abuse (14%).

Psychiatrists were interviewed more frequently than expected by their proportion of licensees (OR 1.6) and disciplined more frequently as well (OR 2.2). The problem areas covered most often at interview were substance abuse (36% of the total), sexual misconduct and prescription practices (15% each), and psychiatric difficulties (11%). Disciplinary action was taken primarily for sexual misconduct (36% of cases), for substance abuse and non-standard prescribing practices (20% each), and psychiatric difficulties (12%).

Internists are the most populous specialty and they made up the third largest number of interviewees, but the likelihood of their being interviewed (OR 0.4) or disciplined (OR 0.4) are low. Interviews usually concerned problems with prescribing (36%), substance abuse (26%), and patient complaints, medical competence, and physician extender supervision (7% each). Disciplinary action was undertaken for substance abuse (47% of cases), prescription practices (27%), and sexual misconduct (20%).

Pediatricians also had low likelihood of being interviewed (OR 0.4) or disciplined (OR 0.3). Substance abuse accounted for 53% of interviews and 50% of disciplinary actions; prescription practices for 16% of interviews and 25% of actions. Two other specialties, *pathology and radiology*, had low odds ratios for interview and action, possibly related to their lesser degree of direct patient involvement.

Conclusions

We have reviewed here data relating to the informal interviews and disciplinary actions made by the Board of Medical Examiners during 1988-1991. This is the first collation of such information by the Board, which is now organizing an inter-organizational data base task force to review the data we collect and to analyze our needs for future information. We anticipate that continued data collection and analysis will strengthen future findings. We hope that North Carolina doctors will find even our early efforts helpful as they become more aware of the issues that arise in the practice of medicine, of their particular vulnerabilities and risks, and the opportunity to improve their practice on behalf of the patients that come to them. We invite discussion, comments, and questions from our readers. □

Appendix

To request copies of publications or to bring concerns about physicians to the Board's attention, contact the North Carolina Board of Medical Examiners, 1203 Front St., Raleigh NC 27609. Mailing address: P.O. Box 26808, Raleigh NC 27611-6808. Telephone: 919/828-1212; Fax 919/828-1295. Bryant D. Paris, Jr., executive secretary.

For PHP referrals contact: NC Physicians Health Program (NCPHP) 4700 Six Forks Road, Suite 220, Raleigh NC 27609. Telephone: 919/881-0585. Robert Vanderberry, M.D., medical director.

For PCERP referrals contact: Charles H. Duckett, M.D., director, Clinical Enhancement Program, ECU School of Medicine. Telephone: 919/551-2608.

References

1 Stratas NE, Alexander E Jr, Paris BD Jr. Function of the Board of Medical Examiners

of the State of North Carolina. NC Med J 1992;53:11-12.

2 Paris BD Jr, Stratas NE. Complaint review process of the Board of Medical Examiners. NC Med J 1992;53:15-16.

Our Roots Run Deep.



North Carolina physicians created Medical Mutual to protect the State's health care providers. For 17 years, we've kept the professional liability market open and stable – and we've built a strong company to weather the inevitable storms ahead.

Medical Mutual. We'll be there when you need us.



Medical Mutual Insurance Company of North Carolina

919.872.7117 800.662.7917

Offices in Raleigh, Greenville and Charlotte.

Screening for Colon Cancer

Is It Worth the Expense?

Jeffrey G. Wong, M.D., and John R. Feussner, M.D.

"You and Mr. Smith have discussed the various options for prostate cancer screening and, following your suggestion, he decided not to get the PSA test. During your counseling about health maintenance screening, the question of colorectal cancer screening came up. He has no relatives with colorectal cancer. He has had no change in his bowel habits and has had no hematochezia or melena. He did have a negative stool Hemoccult test on your examination and, at the age of 63, has never been 'scoped.'"

What strategy, if any, should we recommend for Mr. Smith at this time? Using the six guidelines provided in our first article on health care screening (NC Med J 1993;54:218-221), we will formulate a recommendation for Mr. Smith, reviewing each guideline individually in order to arrive at a reasonable therapeutic plan.

Target Disease Considerations

1. Is the disease common or serious enough to warrant screening?

Yes. Colon cancer is a leading cause of death from cancer; approximately 152,000 new cases of colorectal cancer will be discovered this year and result in more than 57,000 deaths.¹ Five percent of patients who reach age 50 will develop colon cancer before the age of 80 and 2.5% will die from it.² The incidence of colorectal cancer is increasing and men are 1.5 times more likely to develop the disease than women.

2. Is there a presymptomatic phase in the natural history of the disease during

which time a test can detect it?

Yes. In most cases, colorectal cancer develops out of a preexisting adenomatous polyp.³ During early polyp formation, the patient is usually asymptomatic. Successful screening for colorectal cancer is predicated on the strategy that discovering and removing premalignant polyps will result in lower morbidity and mortality rates from colorectal cancer.

Not all polyps become malignant, however. The transformation of adenomatous polyps into colorectal cancer occurs during a 10 to 15 year period. Environmental and inherited factors are important in determining which polyps ultimately become malignant,⁴ but not enough is known to accurately predict which polyps will develop into colorectal cancer. The National Polyp Study⁵ has been designed to investigate this issue.

3. Are there effective treatments for the disease available to use after early detection?

Probably yes. The removal of a premalignant adenomatous polyp very effectively prevents the subsequent development of cancer. New polyps may

form, however, and require repeated polypectomy. Studies to determine the proper interval between polyp screenings are presently under way.⁶

Although polypectomy appears to prevent the development of colorectal cancer, the discovery of actual cancer while it is still in a localized form does improve survival. The estimated 10-year survival rate for limited disease (Dukes stages A and B) is 74%-80%; for regionally metastatic disease (Dukes stage C), 36%; and for distantly metastatic disease (Dukes stage D), only 5%.⁷ However, there is no way to determine whether lead-time and length-time biases account for these apparent differences (for a discussion of these terms, see NC Med J 1993;54:438-40). There are no good studies to demonstrate that asymptomatic cases detected through screening have a lower mortality than cases detected because of symptoms. What has been demonstrated is that screening increases the proportion of cancers discovered at early stages (Dukes A and B). This indirect evidence supports the notion that screening will discover early-stage colorectal cancer and result in improved survival.⁸

From the Division of General Internal Medicine, Box 3375 Duke University Medical Center, Durham 27710.

Screening Test Considerations

1. Are there screening tests with acceptable sensitivity and specificity available to detect the target disease?

Possibly yes. There are three main methods of screening asymptomatic patients for colorectal cancer: the digital rectal examination (DRE), fecal-occult blood testing (FOBT), and endoscopic procedures—mainly rigid and flexible sigmoidoscopy (SIG).

Digital rectal examination has never been studied in a randomized controlled trial. In many patients, DRE is performed as a part of the prostate examination (NC Med J 1993;54:568-71) and is often combined with FOBT in colorectal cancer screening. Digital rectal examination can detect most cancers of the anus and those rectal cancers within finger reach (usually about 7-10 cm), but this represents only about 10% of all colorectal cancers.⁹

The efficacy of FOBT has been debated almost since Greigor¹⁰ in 1967 first used paper slides impregnated with guaiac to detect occult blood in the stool. Several different methods are presently available but the Hemocult (SmithKline) is the method most used and reported. A blood loss of 20 mL/day or more is necessary to cause a positive test.¹¹ The exact sensitivity of the test in asymptomatic patients is not known, but it is reported that 60%-90% of patients with known colorectal malignancies have positive tests.^{11,12} The yield of positive tests is increased if dried stool cards are rehydrated with non-ionized water before exposing them to the developing reagent; this leads to an improvement in sensitivity but a decrease in specificity.¹³ Non-cancerous conditions that produce intestinal blood loss (bleeding diverticula, inflammatory bowel disease, ulcer, hemorrhoids, etc.) and the augmentation of "normal" intestinal losses by the use of anti-inflammatory

medications or anticoagulants lead to "false-positive" tests for colorectal cancer (false for cancer, true for the presence of blood). False-positive Hemocult tests are also possible if the patient does not adhere to a strict diet, limiting red meat, poultry, fish, certain raw fruits, and vegetables prior to obtaining the stool samples¹⁴ (these "false positives" are due to cross reactions and do not reflect intestinal blood loss at all).

The exact specificity of FOBT in asymptomatic populations is unknown but estimates in some recent trials suggest values of 90%-98%.^{15,16} False-negative results can be found in patients whose polyps or cancers bleed intermittently or not at all. Other causes of falsely negative tests include ingestion of antioxidants such as vitamin C that interfere with the guaiac reaction.¹⁷

Ongoing trials are studying the role of FOBT for colorectal cancer screening (Table 1). The first trial began in 1975 at

Table 1. Randomized trials using FOBT for colorectal cancer screening

<u>Trial</u>	<u>N</u>	<u>Ages</u>	<u>Strategy</u>	<u>PPV*</u>	<u>Main results</u>
Memorial Sloan-Kettering/Strang ¹⁵	21,756	> 40	annual	12%	Colorectal cancer mortality slightly reduced in initial subgroup study population; no difference in mortality between annual subgroup population or in all-cause mortality between groups; slight trend for study group cancers found in limited stage (59% vs. 51% in controls).
Univ of Minnesota ¹⁸	46,551	50-80	annual/biennial	5.6%	Colorectal cancer mortality slightly reduced in group screened annually; no difference in biennial group; slight shift to limited stage disease seen in screened populations (59% vs. 53% controls).
England ¹⁶	107,349	50-74	biennial	10%	No effect on mortality yet reported; greater percentage of cancers detected by screening were at a less-advanced pathological stage (61% vs. 43% controls).
Sweden ¹⁹	13,759	60-64	every 16-22 months	4.8%	No effect on mortality yet reported; a trend toward favorable tumor stage noted in the screened group (46% vs. 40% controls).
Denmark ²⁰	61,938	45-74	biennial	18%	Differences in mortality not statistically significant; slight shift to limited stage disease in screened group (71% vs. 55% controls).

*PPV = positive predictive value for cancer

the Memorial Sloan-Kettering Cancer Center in collaboration with the PMI-Strang Clinic.¹⁵ Some 21,756 participants older than 40 years were assigned to receive either a rigid sigmoidoscopy and FOBT (SIG+FOBT) or rigid sigmoidoscopy alone. Some subjects in each group were seen for annual evaluation and some were seen only once at initial evaluation. Of those who were asked to undertake FOBT, 75% returned their stool cards, 1.7% of which were positive for occult blood. The predictive value of a positive FOBT for cancer in this study was 12%. When reported in 1988, 129 cancers had been diagnosed in the group receiving SIG+FOBT, 70 (59%) of which were limited stage cancers (Dukes A and B). Seventy cancers were found in the group receiving SIG alone, 36 (51%) of which were in limited stages. There was no significant difference in colon cancer mortality rates between the groups receiving SIG+FOBT and SIG alone who came for annual check-up. In the groups that had only initial evaluations, there were 12 subsequent deaths from colorectal cancer in the SIG+FOBT group and 22 in the SIG alone group ($p = .053$).

A second study, begun at the University of Minnesota in 1975, includes 46,551 participants aged 50-80 years who were randomized to receive annual FOBT screening, biennial FOBT screening, or no screening; they were followed for up to 13 years.¹⁸ Screened participants submitted six stool cards, most of which were rehydrated before development. Subjects who had positive tests underwent further diagnostic evaluation including colonoscopy. Seventy-five percent of the annually screened group returned their cards, as did 78% of the biennially screened group. The positive test rate varied from 2.4% (non-rehydrated cards) to 9.8% (rehydrated cards), and the positive predictive value for cancer varied from 5.6% (rehydrated) to 2.2% (non-rehydrated). All three groups had similar cumulative rates of colorectal cancer during the study (2.3%-2.6%). When colorectal cancer was diagnosed, it was found in a limited stage (Dukes A or B) in 59% of the annually screened group, 52% in the biennially screened group, and

53% of the control group. The reported cumulative colorectal cancer mortality rates were 0.6% in the annual group, 0.8% in the biennial group, and 0.9% in the control group, suggesting a modest improvement with annual FOBT screening. However, the overall mortality rate from all causes was not different across groups and approximated 22%.

In England,¹⁶ a population-based randomized controlled trial of biennial screening, begun in 1981, enrolled a total of 107,000 subjects aged 50-74. Fifty-three percent of the 52,258 subjects randomized to receive FOBT returned cards, and 2.3% were positive for occult blood (cards were not rehydrated). The positive

“FOBT is positive in 1%-9% of screening evaluations but the predictive value of a positive FOBT is low (2%-18%).... A slightly greater percentage of cancers that are detected by FOBT screening are found in a limited stage.”

predictive value was around 10% for cancer, and this percentage tended to increase with increasing numbers of screenings. Mortality rate figures have not yet been reported, but 61% of the cancers identified in the screened population were at Dukes A or B stage compared to 43% in the non-screened population.

A fourth randomized trial, of 27,700 participants aged 60-64 in Sweden,¹⁹ found that 5.8% of the tests were positive (rehydrated slides were used). The positive predictive value for cancer was 4.8%, and 46% of the cancers detected in the screened group were Dukes A or B stages compared with 40% in the control group.

Finally, a population-based trial of biennial FOBT screening in 62,000 subjects aged 50-74 is ongoing in Denmark.²⁰ On the initial screen, 1% of the cards (tested without rehydration) were posi-

tive; the positive predictive value for cancer was 18%. Seventy-one percent of the cancers diagnosed in the study group were limited stage (Dukes A or B) compared to 55% in the control group. As reported to date, there have been seven colon cancer-related deaths in the study group and five in the control group.

Summarizing data from these studies, we found that FOBT is positive in 1%-9% of screening evaluations and that the predictive value of a positive FOBT for cancer is low (2%-18%). Rehydrating cards before development results in a high percentage of positive FOBT but lowers the overall predictive value of the test. A slightly greater percentage of cancers that are detected by FOBT screening are found in a limited stage. Likewise, some trials have suggested a modest reduction in colorectal mortality rates with FOBT screening.

There are no randomized controlled trials evaluating sigmoidoscopy alone as a screening technique. The Prostate, Lung, Colorectal, and Ovarian Cancer Screening Trial being conducted by the National Cancer Institute will provide a prospective look at this question in the 37,000 men and 37,000 women (aged 60-70 years at entry) planned for enrollment.

Rigid sigmoidoscopy has all but been replaced by flexible sigmoidoscopy, which has the advantage of a longer reach (60-70 cm versus 20-25 cm) and greater comfort for the patient. Use of the flexible sigmoidoscope requires more training, is somewhat more costly, and has a slightly higher procedure complication rate. Even in the most skillful hands, flexible sigmoidoscopy can only detect lesions within the 60-70 cm range of the endoscope. Epidemiological data do suggest that at least 50% of all colorectal cancers and adenomatous polyps arise within this segment of the bowel,²⁰ but any cancers proximal to this segment will be missed. Patients who have adenomatous polyps within this segment often undergo full colonoscopy to exclude the presence of more proximal polyps.

In 1974, Gilbertsen²¹ reported the results of a 25-year study of periodic rigid sigmoidoscopy in 21,150 subjects aged 45 or older. He found 27 cancers on initial

exam and 13 more during subsequent surveillance; 12 were Dukes A stage and one was Dukes B. The results of this study were weakened by the lack of complete follow-up of the entire cohort.

A recent case control study²² identified 261 Kaiser Permanente Multiphasic Health Checkup Plan members who died of cancer arising in the distal colon or rectum (case cohort) and then identified 868 living Plan members who matched the case cohort by age and gender criteria (control cohort). They found that the living control patients were three times more likely to have undergone screening flexible sigmoidoscopy during the 10 years prior to the diagnosis of cancer. In a separate subgroup analysis, they identified 268 Plan members who had fatal colon cancer beyond the reach of the sigmoidoscope and matched them with 268 controls. The frequency with which flexible sigmoidoscopy was performed in these two subgroups was no different. These investigators concluded that screening with flexible sigmoidoscopy appeared

to reduce the mortality from distal colorectal cancer. Although other conclusions may be drawn from these data,²³ the study provides indirect evidence supporting the use of flexible sigmoidoscopy in screening.

2. Can an appropriate population of high risk patients be identified to undergo screening?

Yes, but... Colorectal cancer has a strong link with inheritance in some families. The inheritance patterns fall into three clinical categories: Group 1) the adenomatous polyposis syndromes that represent about 1% of all colorectal cancer cases; Group 2) the hereditary non-polyposis colorectal cancer (HNPCC) syndromes that represent about 6% of cases; and Group 3) "sporadic" adenomatous polyps that make up the remainder.²⁴

Most of the patients in Groups 1 and 2 develop colorectal cancer before age 50. The patients in Group 1 include those with Gardner's syndrome (familial polyposis coli) and other well-described syndromes. Patients not in Group 1 but who have two or more first-degree relatives who developed colorectal cancer early in life belong in Group 2. These patients are likely to be "non-polyp-forming" and the goal of screening is not to prevent (by removing polyps) but to detect colorectal cancers at an early stage. Most of the

sporadic cancer cases develop in patients older than 50. Finally, epidemiological studies suggest a higher incidence of colorectal cancer in patients with underlying inflammatory bowel disease. Despite all this information, however, the vast majority of sporadic colorectal cancer occurs in patients who cannot be easily identified as "high risk" (Table 2).

3. Do the benefits of screening justify the costs of the screening strategy?

Who knows? Lack of prospective randomized controlled trials makes this a difficult question to answer. Given what we do know, some authors have constructed mathematical models using assumptions about screening test operating characteristics, about observed disease incidence rates, mortality rates, financial costs, and about the complication rates of the diagnostic and therapeutic procedures.²⁵ Eddy in 1990²⁶ concluded that patients over 50 and at "average risk" should have an annual FOBT and a flexible sigmoidoscopy every three to five years; patients at "high risk" should have a complete evaluation of the colon by either barium enema or colonoscopy. The Office of Technology Assessment modeled this same screening strategy for subjects aged 65 and older and reported the same conclusions but noted that the costs were higher (they included subsequent colonoscopic surveillance costs for patients found to have polyps).

Table 2. Risks for colorectal cancer

Familial syndromes:

- adenomatous polyposis
- hereditary non-polyposis colorectal cancer (HNPCC)

First-degree relatives with colorectal cancer

History of inflammatory bowel disease

Table 3. Recommendations for colorectal cancer screening of selected groups

	<u>DRE</u>	<u>FOBT</u>	<u>SIG</u>
American Cancer Society	Yearly after age 40	Yearly after age 50	Every 3-5 years after age 50
U.S. Preventive Services Task Force	No recommendation	Insufficient data to recommend for or against; may be prudent to offer to pts. older than 50 yrs who are at "high risk."	Insufficient data to recommend for or against; may be prudent to offer to pts. older than 50 yrs who are at "high risk."
National Cancer Institute	Yearly after age 40	Yearly after age 50	Every 3-5 years after age 50
Canadian Task Force	No recommendation	Yearly in "high risk" pts. after age 45	No recommendation

Recommendations

Not surprisingly, there is no consensus regarding colorectal cancer screening. Table 3, page 637, outlines the present recommendations of several societies. These recommendations were made prior to some of the newer data on screening.^{18,22} New recommendations may be forthcoming.

We cannot recommend DRE as a screening test for colorectal cancer. Likewise, in a population at average risk for developing colorectal cancer, we feel that FOBT fails to meet the criteria for an effective screening test due to its very low predictive value. It may be prudent to employ FOBT screening in high-risk populations (Table 2) where, by virtue of a greater cancer prevalence, the positive

predictive value will be higher. There is indirect evidence suggesting that screening with flexible sigmoidoscopy may improve colorectal cancer mortality. Those data, similar in nature to the indirect data supporting the use of Pap smear screening for cervical cancer, are compelling. Despite his negative FOBT we would recommend Mr. Smith be scheduled for flexible sigmoidoscopy. □

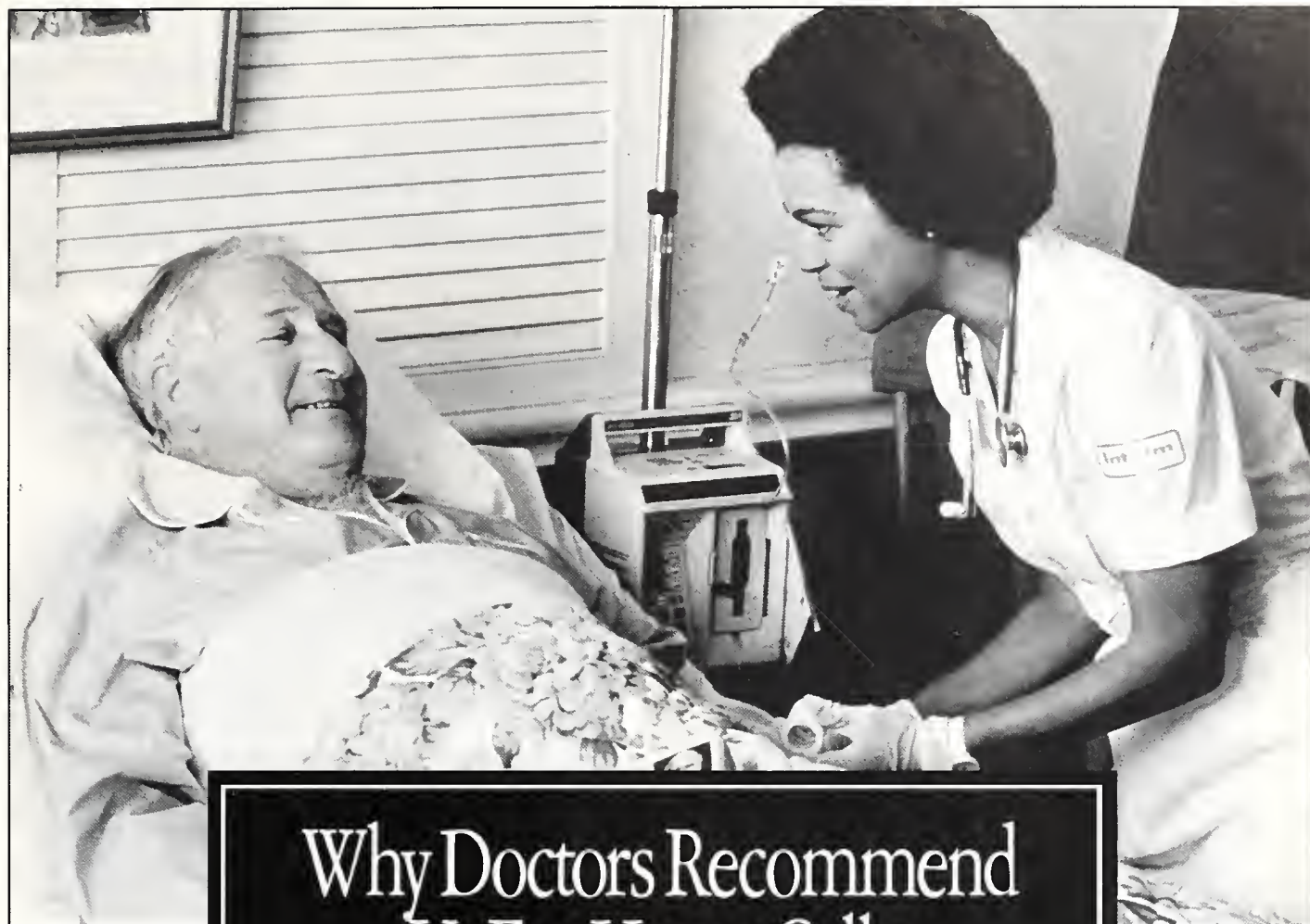
Next in our series on screening strategies for disease, we will discuss the following:

"Mr. Jones is a 57-year-old man who has worked in the textile mills most of his life. Up until three years ago, he smoked one to two packs of cigarettes per day and had since his late teens. He quit because it seemed that he had 'pneumonia all the time' and he was tired of coughing and being short of breath. He gained 20 pounds following smoking cessation, and he has mild hypertension, controlled well with medication. He has come in for his annual check-up and asks about a chest x-ray to screen him for lung cancer."

What should you tell Mr. Jones?

References

- Boring CC, Squires TS, Tong T. Cancer statistics, 1993. *CA Cancer J Clin* 1993; 43:7-26.
- Seidman H, Muchinski MH, Gelb SK, Silverberg E. Probabilities of eventually developing or dying of cancer—United States, 1985. *CA Cancer J Clin* 1985; 35:36-56.
- Muto T, Bussey HJR, Morson BC. The evolution of cancer of the colon and rectum. *Cancer* 1975;36:2251-70.
- Vogelstein B, Fearon ER, Hamilton SR, et al. Genetic alteration during colorectal tumor development. *N Engl J Med* 1988;319:525-32.
- Winawer SJ, Zauber AG, et al. The National Polyp Study: design, methods and characteristics of patients with newly diagnosed polyps. *Cancer* 1992;70 (suppl): 1236-45.
- Winawer SJ, Zauber AG, O'Brien MJ, et al. and the National Polyp Study Workshop. Randomized comparison of surveillance intervals after colonoscopic removal of newly diagnosed adenomatous polyps. *N Engl J Med* 1993;328:901-6.
- National Cancer Institute. Surveillance, epidemiology and end results: incidence and mortality data, 1973-1977. National Cancer Institute Monograph No. 57 Bethesda MD: National Cancer Institute, 1981.
- Shapiro S. Goals of screening. *Cancer* 1992;70(suppl):1252-58.
- Schottenfeld D, Winawer SJ. Large intestine. In: Schottenfeld D, Sherlock P, eds. *Colorectal Cancer: Prevention, Epidemiology, and Screening*. New York: Raven Press, 1980:175-80.
- Gregor DH. Diagnosis of large bowel cancer in the asymptomatic patient *JAMA* 1967;201:943-5.
- Crowley ML, Freeman LD, Mottet MD, et al. Sensitivity of guaiac-impregnated cards for the detection of colorectal neoplasia. *J Clin Gastroenterol* 1983;5:127-30.
- Macrae FA, St. John DJB. Relationship between patterns of bleeding and Hemoccult sensitivity in patients with colorectal cancers or adenomas. *Gastroenterol* 1982;82:891-8.
- Wells HJ, Pagano JF. Hemoccult test-reversal of false-negative results due to storage. *Gastroenterol* 1977;72:1148.
- Illingworth DG. Influence of diet on occult blood tests. *Gut* 1965;6:595-8.
- Flehinger BJ, Herbert E, Winawer SJ, et al. Screening for colorectal cancer with fecal occult blood test and sigmoidoscopy: preliminary report of the colon project of Memorial Sloan-Kettering Cancer Center and PMI-Strang Clinic. In: Chamberlain J, Miller AB, eds. *Screening for Gastrointestinal Cancer*. Toronto: Hans Huber, 1988:9-16.
- Hardcastle JD, Thomas WM, Chamberlain J, et al. Randomized controlled trial of fecal occult blood screening for colorectal cancer: the results of the first 107,349 subjects. *Lancet* 1989;1:1160-4.
- Griffith CDM, Turner DJ, Saunders JH. False-negative results of Hemoccult test in colorectal cancer. *Br Med J* 1981;283:472.
- Mandel JS, Bond JH, Church TR, et al. Reducing mortality from colorectal cancer by screening for fecal occult blood. *N Engl J Med* 1993;328:1365-71.
- Kewenter J, Bjork S, Haglund E, et al. Screening and rescreening for colorectal cancer: a controlled trial of fecal occult blood testing in 27,000 subjects. *Cancer* 1988;62:645-51.
- Kronborg O, Fenger C, et al. Initial mass screening for colorectal cancer with fecal occult blood test. *Scand J Gastroenterol* 1987;22:677-86.
- Gilbertsen VA. Proctosigmoidoscopy and polypectomy in reducing the incidence of rectal cancer. *Cancer* 1974;34:936.
- Selby JV, Friedman GD, Quesenberry CP, Weiss NS. A case-control study of screening sigmoidoscopy and mortality from colorectal cancer. *N Engl J Med* 1992;326: 653-57.
- Tierney WM. Screening sigmoidoscopy and colorectal cancer. Letter, *N Engl J Med* 1992;327:435.
- Burt RW, Bishop DT, Cannon-Albright, et al. Hereditary aspects of colorectal adenomas. *Cancer* 1992;70(suppl):1296-9.
- Eddy DM, Nugent FW, Eddy JF, et al. Screening for colorectal cancer in a high-risk population. Results of a mathematical model. *Gastroenterology* 1987; 92:682-92.
- Eddy DM. Screening for colorectal cancer. *Ann Intern Med* 1990;113:373-84.



Why Doctors Recommend Us For House Calls.

Temporary HeroesSM

When a patient needs continued care after discharge, doctors count on INTERIM HEALTHCARESM services. As one of the nation's oldest and largest providers of qualified specialists, INTERIM HEALTHCARESM services represent a complete range of professional nursing and technical disciplines. From home care to long- and short-

term office staffing, we offer the total flexibility to satisfy every level of care. JCAHO accreditation and an extensive qualifications and screening process reflect our commitment to stringent standards. When your patients are counting on you, count on the INTERIM HEALTHCARESM team to make house calls.

Interim
HEALTHCARESM

Formerly Medical Personnel Pool®

JCAHO Accredited

Ahoscie 800-849-8867 • Asheville 704-253-0301 • Chapel Hill 919-929-4396 • Charlotte 800-234-8230 • Clinton 800-562-9011 • Dunn 800-849-7669 • Durham 919-493-7575
Elizabeth City 800-849-8868 • Elizabethtown 910-862-8790 • Fayetteville 800-849-6144 • Gastonia 704-861-1156 • Greensboro 800-955-2901 • Greenville 800-849-7669 • Hendersonville 704-693-1449
Hickory 704-324-2121 • High Point 910-887-1272 • Jacksonville/Morehead City 800-452-8241 • Kitty Hawk 800-849-8870 • Laurinburg 800-962-4272 • Lenoir 704-754-0211 • Lumberton 800-331-1628
Pinehurst 910-295-2211 • Raeford 910-875-5833 • Raleigh 919-872-7100 • Roanoke Rapids 919-537-1500 • Rocky Mount 919-985-1867 • Sanford 919-774-6026 • Southport 800-598-9168
Troy 910-576-3700 • Wallace 910-285-6063 • Whiteville 800-849-6613 • Wilmington 800-653-3171 • Wilson 800-476-7665 • Winston-Salem 910-768-6997

YOCON®

YOHIMBINE HCl

Description: Yohimbine is a 3a-15a-20B-17a-hydroxy Yohimbine-16a-carboxylic acid methyl ester. The alkaloid is found in Rubaceae and related trees. Also in Rauwolfia Serpentina (L) Benth. Yohimbine is an indolalkylamine alkaloid with chemical similarity to reserpine. It is a crystalline powder, odorless. Each compressed tablet contains (1/12 gr.) 5.4 mg of Yohimbine Hydrochloride.

Action: Yohimbine blocks presynaptic alpha-2 adrenergic receptors. Its action on peripheral blood vessels resembles that of reserpine, though it is weaker and of short duration. Yohimbine's peripheral autonomic nervous system effect is to increase parasympathetic (cholinergic) and decrease sympathetic (adrenergic) activity. It is to be noted that in male sexual performance, erection is linked to cholinergic activity and to alpha-2 adrenergic blockade which may theoretically result in increased penile inflow, decreased penile outflow or both.

Yohimbine exerts a stimulating action on the mood and may increase anxiety. Such actions have not been adequately studied or related to dosage although they appear to require high doses of the drug. Yohimbine has a mild anti-diuretic action, probably via stimulation of hypothalamic centers and release of posterior pituitary hormone.

Reportedly, Yohimbine exerts no significant influence on cardiac stimulation and other effects mediated by B-adrenergic receptors, its effect on blood pressure, if any, would be to lower it; however no adequate studies are at hand to quantitate this effect in terms of Yohimbine dosage.

Indications: Yocon® is indicated as a sympatholytic and mydriatic. It may have activity as an aphrodisiac.

Contraindications: Renal diseases, and patient's sensitive to the drug. In view of the limited and inadequate information at hand, no precise tabulation can be offered of additional contraindications.

Warning: Generally, this drug is not proposed for use in females and certainly must not be used during pregnancy. Neither is this drug proposed for use in pediatric, geriatric or cardio-renal patients with gastric or duodenal ulcer history. Nor should it be used in conjunction with mood-modifying drugs such as antidepressants, or in psychiatric patients in general.

Adverse Reactions: Yohimbine readily penetrates the (CNS) and produces a complex pattern of responses in lower doses than required to produce peripheral a-adrenergic blockade. These include, anti-diuresis, a general picture of central excitation including elevation of blood pressure and heart rate, increased motor activity, irritability and tremor. Sweating, nausea and vomiting are common after parenteral administration of the drug.^{1,2} Also dizziness, headache, skin flushing reported when used orally.^{1,3}

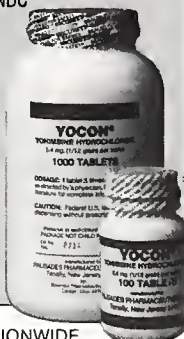
Dosage and Administration: Experimental dosage reported in treatment of erectile impotence.^{1,3,4} 1 tablet (5.4 mg) 3 times a day, to adult males taken orally. Occasional side effects reported with this dosage are nausea, dizziness or nervousness. In the event of side effects dosage to be reduced to ½ tablet 3 times a day, followed by gradual increases to 1 tablet 3 times a day. Reported therapy not more than 10 weeks.³

How Supplied: Oral tablets of Yocon® 1/12 gr. 5.4 mg in bottles of 100's NDC 53159-001-01 and 1000's NDC 53159-001-10.

References:

1. A. Morales et al., New England Journal of Medicine: 1221, November 12, 1981.
2. Goodman, Gilman — The Pharmacological basis of Therapeutics 6th ed., p. 176-188. McMillan December Rev. 1/85.
3. Weekly Urological Clinical letter, 27:2, July 4, 1983.
4. A. Morales et al., The Journal of Urology 128: 45-47, 1982.

Rev. 1/85



AVAILABLE AT PHARMACIES NATIONWIDE

**PALISADES
PHARMACEUTICALS, INC.**

64 North Summit Street
Tenafly, New Jersey 07670
(201) 569-8502
1-800-237-9083

NCMS Plaque Honors Former Journal Editorial Board Chair Charles W. Styron, M.D.

Editor's note: In August, the North Carolina Medical Society presented a plaque to Mrs. Charles W. Styron in honor of her husband's many years of service to the Society and to the Journal. The following is the resolution honoring Dr. Styron that the Society passed last November during the second session of its House of Delegates.



NCMS President-elect Elizabeth P. Kanof, M.D., and George E. Moore, former executive vice president, present the plaque to Mrs. Charles W. Styron (center).

Whereas, Charles Woodrow Styron was a faithful member of the North Carolina Medical Society from 1946 until his death on August 22, 1992; and

Whereas, Charles Woodrow Styron led the North Carolina Medical Society as its president in 1972; and

Whereas, Charles Woodrow Styron served faithfully and well as a member of the Editorial Board of the North Carolina Medical Journal beginning in 1960 and as chairman from 1975 until his death; now therefore be it

Resolved, That the North Carolina Medical Society acknowledge its deep debt to Charles Woodrow Styron for his tenacity, his dedicated leadership, his consistent vision, and his unflinching determination that the North Carolina Medical Journal strive for and achieve its present position as a premier state medical journal; and be it further

Resolved, That the North Carolina Medical Society honor Charles Woodrow Styron as an example for all physicians of what it means to live the motto of his native North Carolina: Esse quam videri. □

Health Watch

VOLUME 54 / NUMBER 12 / DECEMBER 1993

Hospice

CARE FOR THE TERMINALLY ILL

Philosophy of hospice

The purpose of hospice is to provide support and care for persons in the last phase of illness so they can live as fully and comfortable as possible. Hospice neither hastens nor postpones death. Hospice affirms life and regards dying as a normal process.

History of hospice in America

The first hospice program in America was established in 1974 in New Haven, Connecticut. By 1979 there were an estimated 210 programs in the United States. Currently it is estimated that there are over 1900 hospice programs operating in the United States.

Increasingly, health professionals are thinking, planning, supporting and embracing the hospice approach. There is good reason to believe that even more organized, positive and comfortable supportive care for the terminally ill will be

forthcoming. Medical and nursing schools are augmenting their curricula by teaching the basic skills that will help the patient and family and medical professionals work as a unit.

Q What is hospice?

A Hospice is a coordinated interdisciplinary program of supportive services and pain and symptom control for terminally-ill people and their families. Hospice is primarily a concept of care, not a specific place of care.

The objective of hospice is to ease the pain for the terminally ill and their families. To some extent this is true of all medical care, but it has special importance in the case of the terminally ill. Naturally, the close relatives of dying patients face problems that seem insurmountable at times. Some of these problems grow out of their inability to cope with their impending loss. Some are practical problems related to understanding and accepting their altered circumstances in life. These two factors are what the hospice concept helps the family and patient face, while offering compassion and sensitivity and at the same time keeping the patient comfortable.

Q What does hospice provide?

A Hospice programs can provide physical, psychological and nursing care and can also involve other appropriate disciplines including: physical therapy, dietetics, legal assistance, spiritual counseling, social work services and other community-based resources.

Community programs may range from grassroots interest groups which rely heavily on professional and lay volunteers to organizations that provide comprehensive palliative and support services through employees and lay volunteers. Most programs provide home care services and arrange for inpatient care when needed.

Programs differ from hospice to hospice, but most offer routine bereavement care for patients and families when the patient has died. They begin with nursing and medical services that concentrate on the management of pain and symptoms. In addition, they offer social work, counseling and emotional support to help the family cope with feelings of loss and other emotions as they care for a dying family member. Spiritual and volunteer assistance is provided.

Q When and how are hospice referrals made?

A Hospice care is available to terminally-ill patients who are no longer under treatment for cure of their disease and who have a life expectancy measured in weeks or months. Patients are usually referred by their primary physician. Referrals can also be made by family members, friends, clergy or health professionals.

Q What is a hospice plan of care?

A A hospice plan outlines the care the hospice interdisciplinary team perceives as meeting the needs of patients and families. It is designed so that patients may live free from pain and other physical symptoms. Both patient and family are provided the psychological, social and spiritual support they need before and after the death of the patient.

The hospice interdisciplinary team works very closely with the patient and family. All decisions regarding the plan of care have to be approved by family members as well as the patient. The patient and the family are encouraged to express their priorities so that the plan of care will meet their individual needs.

Q How do patients participate in a hospice plan?

A Persons with terminal illness are as diverse in their values and lifestyle situation as any other group of people. Their physical, spiritual and emotional needs remain unique throughout this final life phase. The patient and family are encouraged to express their priorities so that the hospice plan of care will meet their individual needs.



Q Are family members involved in hospice care?

A The patient and family are viewed as a unit of care. Family members or friends are urged to participate in the patient's care as much as possible. When family members cannot provide as much care as may be needed at certain times, hospice personnel will try to meet the patient's needs by exploring all possible options to do so.

Q What if the patient has no family primary caregiver?

A In this situation the hospice team attempts to identify and train the patient's neighbors, friends or other community volunteers so that they can work with the hospice care team.

Q Does the patient's primary physician work with the hospice team?

A The patient's personal physician generally refers the patient to the hospice program and usually works with the hospice team in one of the following ways: (1) the physician may plan most patient care; (2) the physician may work in coordination with the hospice team; or (3) the physician may delegate the patient's care to a hospice physician.

Q Who determines what medicines will be used?

A The patient's primary physician or the hospice medical director consults with the patient and hospice nurse and then determines what medicines will achieve patient comfort. In order to control pain and symptoms, the patient and family as a unit must be assessed in order to identify all factors contributing to the pain and other symptoms.

Q What is the role of nursing in hospice?

A The nucleus of the interdisciplinary hospice team is the hospice nurse. He or she is the focal point for coordinating most phases of the medical treatment. This trained professional's role is essential in providing care for

people in the final phase of a terminal illness. The nurse is on call all hours of the day and night to make a quick assessment of a patient's needs.

Q How do clergy work with the hospice team?

A Members of the clergy provide spiritual counseling and support to patients and family members. The pastor, priest or rabbi, who in most cases knows the family unit, usually continues to provide spiritual assistance. However, if a patient needs help in this regard, the hospice team will provide a hospice clergy member.

Q What is the role of social workers?

A The social worker provides psychological support for the patient, family and the hospice staff. Social workers help with financial planning, assessing family needs, assisting with funeral arrangements and coordinating other community resources.

Q How can volunteers help provide hospice care?

A Hospice volunteers offer understanding and support to the family as well as to the patient. They help out with daily chores, run errands or provide a shoulder to lean on. Volunteers often read to patients or sit quietly with them to help them cope with the many emotions they encounter during different stages of their illness.

Before volunteers begin a hospice program's extensive training they are interviewed by the volunteer coordinator. They may be asked to complete specially designed questionnaires that assess their feelings and sensitivity towards dying persons. Every hospice program has an initial volunteer



training program, and hospice volunteers work hard to keep their skills maintained and updated.

Q How are hospice programs funded?

A Hospice care is insured by the Medicare Hospice Benefit enacted in 1982, provided the hospice program is Medicare certified. Additionally, hospice is an optional benefit under Medicaid and many private insurance companies offer a comprehensive hospice care benefit plan. However, many hospice programs rely heavily, if not entirely, on grants, donations, and memorials to meet the needs of their patients and families.

Q How do I find out more about hospice care?

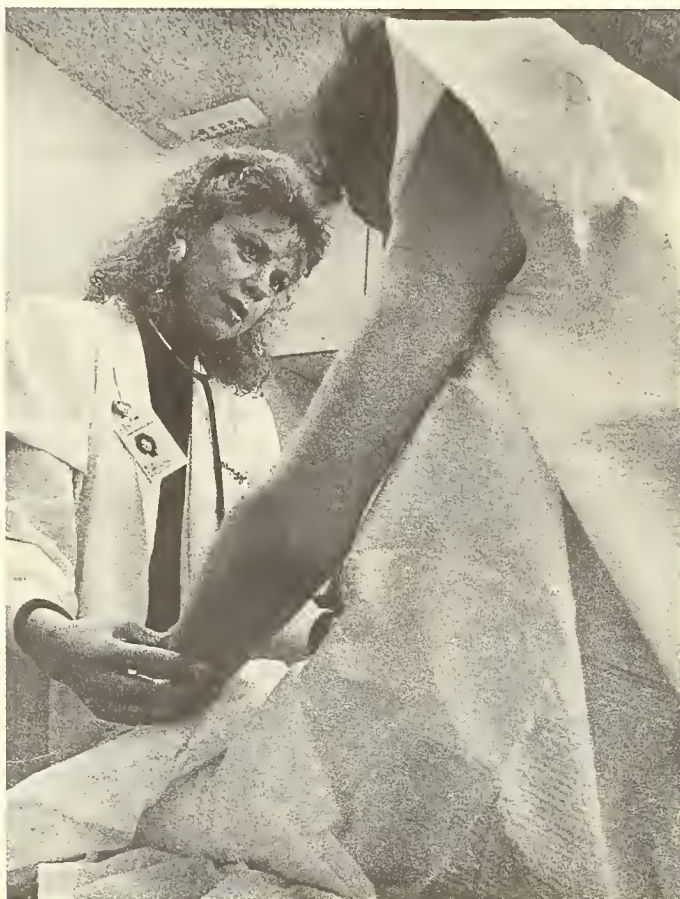
A Living at home during the final days of life gives patients a sense of control and comfort. It allows families to share this valuable time. Hospice means living with choices, dying with dignity. For information in your area you can contact Hospice of North Carolina, Inc. at (800) 662-8859. They will be able to provide any additional information you may need.

The National Hospice Organization (NHO) is a national clearinghouse for locating hospice programs and information about hospice care. A variety of publications on hospice are available from the NHO. For more information write: National Hospice Organization, Suite 901, 1901 North Moore Street, Arlington, VA 22209, or call (703) 243-5900. □

References

National Hospice Organization. *The Basics of Hospice*.

Hospice of Wake County. *Catch the joy, Share the pain*



"I have never gotten used to people dying. And I don't want to get used to it."

Dr. Aliza Lifshitz, Internist, Los Angeles, California,
Member, American Medical Association

Patients come to physicians for many reasons. Beyond relief from pain, they seek compassion, empathy and support. AIDS patients receive all of these and more from Dr. Aliza Lifshitz.

Born and raised in Mexico and educated at one of Mexico City's finest medical schools, Dr. Lifshitz now serves the Hispanic community in Southern California. Over a third of her patients have tested HIV positive. Most live below the poverty level. Many are illegal aliens.

"I never forget what it means to be a doctor, and what it means is embodied in the Principles of Medical Ethics of the American Medical Association (AMA)," states Dr. Lifshitz.

You are invited to join Dr. Lifshitz and to join with her in her efforts to bring quality health care to those in need. Become a member of the AMA today.

Members of the AMA are encouraged to join their state, county and specialty societies.

American Medical Association

Physicians dedicated to the health of America



Gene Stead Looks at Doctoring

Eugene A. Stead, Jr., M.D.

Editor's note: The following was adapted from the Frank R. Lecocq Lecture delivered at Duke University Medical Center on April 23, 1993.

Well this is my swan song. I want to begin with a word about Joe Greenfield, the current chairman of the Department of Medicine. His successor will be selected soon, and I think the most fascinating thing about it is that the people doing the selecting will have absolutely no notion as whether the new professor has any ability as a teacher or leader. You would be surprised I think to discover that that will happen, but it really will. And I don't think many of you know how you've been blessed in these past years with a person who is a scholar, a scientist, a physician, and beyond all else a developer of young people. I've only one quarrel with Joe and it is that he somehow never set the stage so that all of you could actually see him in action at his very best. I know because, if you went as I did for seven or eight years to the Friday conferences where he meets with his junior residents, you would see a leader watching young people learn. In the course of the learning (and this is one of the things that Dr. Greenfield is very conscious of) *he* learns. The Friday conferences are not organized as Greenfield teaching residents but as residents learning and Greenfield learning in the process. It's the one experience that I really miss most because of my necessary withdrawal from the Medical Center. But, I want to tell you, on the basis of long experience and careful observation, that the people sitting in this room have been unusually blessed these past 10 years. I wish that a committee could be formed that would know how to pick another Joe Greenfield. I confess I have great skepticism in their ability.

I. Playing the Education Game

Now, I've got four talks. The first one starts off "How the game was played." I really was impressed with my mother and father.

Dr. Stead served as editor of the *Journal* from 1983-1992. He was chairman of the Department of Medicine at Duke University Medical Center in Durham from 1946-1967.

They had five children. They didn't have much money. We always told them that if they had been bright they wouldn't have had five children, but they always said they thought they were bright and they were very pleased with their five children.

The first thing I learned was that the game had to be played in a way that made me honest. My mother and father never questioned my word. If I had an altercation with somebody else or if I had a disagreement with my teacher, my mother and father never raised a question of who was correct about what had happened. I was supposed to tell the truth. I found this somewhat burdensome but, in the end, it was helpful to me.

The second thing I learned—and it is one of the things that the Duke Medical School needs to learn—I learned from my father who taught me how important communication is. One of the ways in which all of us keep stumping our collective toe is that we really don't know how to pass on information about what we're doing, and what we're trying to do, in ways that cue others in on our activities. As youngsters, my sister and I both had very severe illnesses—illnesses that completely eliminated all of the money in the family. I was about five years old. My father was fairly hopelessly in debt, and had quite a struggle for the next few years. Nevertheless, he always kept a good credit rating by communicating with his creditors. He simply responded clearly when the inevitable questions came about how he was going to handle the finances and when the bills were going to be paid. The information was presented in a believable way, and in due time he worked himself out of the financial problems his children had created. I learned this lesson: always respond, communicate, and keep the channels wide open.

Another fortunate thing was that I didn't have too much schooling. When I went to school we had just changed from a one-room schoolhouse to a structured, graded system. My sister, who was a year and a half older than I, took me to school and she enrolled me in the second grade. She said: "I've taught him all that he needs to know in the first grade," and actually no one asked any questions. Another break was that the school program consisted of seven years of grammar school and four years of high school. That's really enough; I never knew why they put in that extra year in junior high school. But overall I had the good fortune to save two years. I got to college two years

earlier than I would otherwise, then I got through college in three years and so, at a relatively young age, I was "finished" with formal education.

Now I'm not short on education. After all, I spent seven years in a white suit and I had a good time. But I am a believer in the fact that the sooner you can satisfy the terms of the bond and stop being told what you "must" learn and start learning on your own, the better off you are. Based on my own experiences, I've always believed 100 percent in shortening someone's formal education and leaving time for informal education whenever possible.

I'm essentially a crammer. I never did anything until the last two days of school, and then I kind of said "I wonder what this course is about, and I wonder what the professor is going to ask on the examination?" I got out my pot of coffee, I went to work, and 48 hours later I usually turned in a pretty good account. That's one way to learn. Most people don't recommend it, although I kind of enjoyed it. I had a lot of fun while everybody else was doing something else. The best thing was that it taught me about the forgetting curve because three days after the final examination I couldn't pass the same examination again. I was a phenomenally good forgetter. I've watched this among other people who are nearly as good forgetters as I was. Maybe not quite, but they're not bad.

II. The Limits of Happiness

My next talk really has to start with a word about happiness. Frank Lecocq, for whom this lecture is named, was a happy person. He was just fun to be with. As with any doctor who comes to Duke and is extraordinarily successful, everybody began to claim credit for recruiting him. Ike Robinson said: "I worked in the Air Force with Frank Lecocq, I did research with him, and I got him to come to Duke." A lot of other people claimed Frank, which is understandable because he made the most rapid in-roads into the Duke community of any person that ever came here. He really was remarkable. He enjoyed the day and the practice of medicine, and if you needed help he gave it to you. He was a great, great person. But now I want to tell you who was responsible for Frank Lecocq coming to Duke—it was Gene Stead who got him here.

I said that Frank was a happy person, and I will say just one word in particular about happiness. Happiness is a finite phenomenon. It is not infinite. I see people who really have what they want, and are in positions that can maintain their happiness, but they think happiness is infinite and, therefore, they try to grab for more. If you try to grab for happiness instead of stopping to enjoy what you've got, the world doesn't turn out so well. You will find it helpful if you can remember that happiness is finite and when you have it, enjoy it.

I discovered this because I have some biological variations,

and I have learned from living with them. For instance, I am tone deaf. That's a liability. I look at the fun people have with music but the whole world of music is absolutely blank to me. Another problem is my inability to clearly define facial characteristics. I cannot identify or draw in any way a picture of my wife. As a matter of fact, I have learned always to let her speak first before I say "hello" because I never liked to pick up strange women.

Such variations have always interested me and I think they account for a remarkable amount of the complaining that occurs in the world. People wonder why they are different from other people. They know they are different, but they don't quite know what to do with the differences, and if they go to the doctor, the doctor doesn't either. I don't think I've ever been to a physician who had any interest in the fact that I am tone deaf. If it were something familiar, like if I was color blind, the doctor would say: "Okay. I'll tell you how to handle the traffic lights so you won't be at a disadvantage with your color blindness."

Physicians ignore normal variations most of the time. They interest me because I have been involved in watching young people determine their careers and figure out what they are going to do with their lives. Most young people can identify with someone like Dr. Greenfield. They decide they will be like

him without ever determining how much they are like him and how much they are different. Usually they discover that they are very different and, therefore, turn out to be quite different. One has to be very careful, when advising young people about careers, to have them

"Based on my own experiences, I've always believed 100 percent in shortening someone's formal education and leaving time for informal education whenever possible."

look at themselves very honestly and really determine what they want to do, where their opportunities really lie, where their satisfactions really come from, and how they can arrange their lives.

In my time, young doctors were never very well paid. Duke residents were paid \$25 a month but, of course, I hadn't earned anything, so I thought the residents were kind of splurging on the system. Still, I think it's important to discover that there's no relationship between happiness and wealth. I know of no more useful information for a young doctor with any kind of ability than to look around and discover that without money it's difficult to arrange a happy life. But if you spend your life accumulating material resources with little attention to your spouse, children, or anyone else, great wealth will pave no road to happiness. That's very important information to get early into your head.

III. Disease, Biological Variation, and the Doctor's Job

I'm trained as a practicing doctor, trained in an era in which practicing doctors knew no science. The people who educated

me in clinical medicine were always puzzled about why we had the first two years of medical school because there was a kind of complete disconnection between biological sciences (even in their embryonic stages) and the actual practice of empirical medicine. When I grew up, my job was to take care of patients and their diseases. Of course, I immediately ran into a quandary. It is very difficult to define disease. I didn't—and still don't—have a very good definition for it. I think of disease as something that is painful to the individual, is frequently harmful to his or her body, and, in general, progresses. The progression can go two ways: either the patient gets well, which is the most common progression, or he or she doesn't and the body has continual trouble with whatever the process is. In this sense, one has to distinguish disease from the biological variations I alluded to earlier—variations within the spectrum of biological possibilities in people. I have never known, for example, whether a man born with one leg has a disease. I would have thought that, in the sense that I use the word, he doesn't. He certainly has a liability; he wishes he had the other leg. He has problems getting around and lots of things can be done to help him. But whether he has a disease or not remains to me an open question. If you look at the spectrum of patient complaints and the reasons why people come to doctors, you discover that variations in individuals are a much more common cause of symptoms than what I call disease is. This is one of the complex problems in the practice of medicine.

It's difficult to find a physician who is comfortable identifying biological variations that are not classified as diseases. One of the reasons that patients aren't satisfied with medical care is that physicians are always looking for disease. And most people who come to see doctors either have a disease from which they recover spontaneously or they don't have a disease—they have problems related to the fact that they use their bodies in unhealthy ways. Then the body complains to the patient, the patient complains to the doctor, and the doctor looks for disease. But often disease simply isn't there. It's like the problem of the Cadillac and the tractor. If you take a tractor that can do anything in a muddy field and put it on I-85, you'll get the driver killed. On the other hand, if you take that Cadillac that performs so beautifully on I-85 and put it in a muddy field, it doesn't work at all. In the end we find that when people do not fit their body to the environment, to the aspirations of their job and what they're trying to do, the body complains and the patient comes to the physician. So how does the physician help the patient? Most doctors aren't interested. They have been trained *only* in taking care of diseases, and when the patient comes without disease the doctor is at a loss.

Of course it's foolish to go to a physician who doesn't know how to take care of disease. You want a physician who has

seen a lot of illness; knows what illness is, what kind it is, what's health, and what's not recognized as health. That takes a certain amount of experience, and I don't know any way to get this very rapidly. I think most physicians are fearful of patients until they can identify whether scientific medicine is going to be useful. Until they reach that confidence, doctors will always be fearful—ordering a lot of things that don't need to be ordered, or getting unnecessary consultations. They will flounder until they learn to know whether or not disease is present and can be approached by scientific medicine.

There's no way to make confidence develop instantaneously. I think that if you want a young doctor to grow professionally it has to be in the presence of a lot of disease. Other people think you can grow where disease is diluted by non-disease, but I don't think you can do it well. We tried it a few times. I selected a few bright people who thought Duke Hospital under Gene Stead was just too tough. We tried to educate them in the clinic. They didn't turn out too well. They simply didn't know for sure who was going to die and who wasn't going to die and whether they could do anything about it. They were kind of nervous doctors. Other people believe you

can train doctors in a disease-diluted situation, but I'm still a city hospital man. I lived through Grady Hospital; I lived through Cincinnati General Hospital; I lived through Boston City Hospital. I saw half the patients who came in the door in the autopsy room 10 days later. You know, we saw a lot of disease. I still believe

“Physicians working in disease-saturated systems with poor, uneducated people and little economic support become good doctors. Unfortunately, they don't do any social good because the system is unapproachable by medicine.”

that's the best way to train a doctor.

There is a termination point though, and there comes a time when you have learned that kind of medicine. It belongs to you. You know disease. You can spot alcoholics because you've lived with them. You have also come to face the fact that, when the social systems have broken down and education, housing, food, and jobs are absent, doctors just don't do much good. We might spend all night sewing up the belly and the chest and the penetrating ice-pick wound to the heart. Then everybody finally goes to bed exhausted, all the supplies used up, only to be back in the same room with the same patient a month later doing the whole thing over. Physicians working in disease-saturated systems with poor, uneducated people and little economic support become good doctors. Unfortunately, they don't do any social good because the system is unapproachable by medicine.

After young physicians have been saturated with disease, they must learn how to take care of patients who are able to work, who can get another doctor if they don't like you, and who are financially independent. In this setting the doctor has to transfer his or her daily activity from taking care of disease to taking care of a working population in which disease has been progressively diluted out. That's a difficult transition because

the doctor has to take care of patients, not just diseases. The job is complex because of all the differences among patients and because the doctor has not been trained to take care of this population. At Grady Hospital, a very devoted group of people graduated from our program. When they went into practice I said: "You can't come back to Grady Hospital." They went out to a practice that they could not enjoy. I had excluded them from the one thing they knew how to do and did extraordinarily well—take care of the sick and the dying. I struggled with this and never really solved the problem. Very bright, dedicated people who worked very hard in their residency training simply weren't getting a kick out of living and practicing medicine. I came to Duke in large part because it had a private service that would let young people see what doctors could do and what doctors could not do.

So, when I came to Duke, I had great enthusiasm for private patients and the private service. My interns and residents thought I was kind of nuts. They said: "Look, I don't want to be on the private service. I can't do what I want to do. I can't behave like I behave on the public service because if I did, the patient would leave the hospital. I don't like all those restrictions that the private service makes." The private service never was the most popular part of training, but after those young doctors left, they came to appreciate what they had learned on the private service. Remember, no matter what students say they are going to do, most of them end up in medical practice. They may do things along the way and have quite a good time doing them, but in the end the practice of medicine has tremendous appeal. Not everybody can think great thoughts indefinitely. After a while you begin to say "I've thought my last great thought. I think I'll go be useful." And when those young people came back after they had gone into practice they would say: "You know, I thought Dr. M was kind of a quiet man and I wasn't quite sure of what I was learning from him on the private service. But *now* I know what I learned from him and I'm very grateful that I had the experience." It takes time to make a doctor. There must be a lot of experiences along the way. There must be a lot of patients, and you've got to realize that you're going to get a lot of diversity in doctors.

IV. Is a School for Teaching or Learning?

I was one of the professors of Medicine who never worried about something that always paralyzed my colleagues. I never worried about the lower third of the medical student class. If you ask any professor of Medicine why they didn't do a better job training doctors, they will say "Because I've got *those* students

dragging me down. I've got to fuss with them and fight with them and be sure they know enough when they get out of here." I never had any of those problems. I just looked at the population. Do you realize how many cults there are in this world? Do you realize how many people don't have the slightest interest in scientific medicine? Do you realize what a large part of the population will never be touched by science in any way? Why should I produce only scientific doctors who will practice only "scientific" medicine? I produced all kinds of doctors. They practiced any kind of medicine they wanted, but they weren't any worse than the people already practicing.

Should I have worried about it? I never did. I aimed at the top of the class. That's where the gold is. That's where the opportunity lies. That's where the reputation of Duke Hospital lies. That's where the greatest satisfaction and the greatest happiness from being doctor lies. So I let the lower third of the class roll along and didn't worry about them. In the end they did pretty well. Surprisingly enough, if you look at who contributes money to Duke Medical Center, the lower third of the class frequently does better than the top third of the class. So don't worry about the medical students. You really can give them a opportunity to learn, kind of leave them alone, and see what happens. You'll discover that lots of good things do happen.

Now, I come back to a question that always has dogged the system. Do we have a school or not? In many ways that's a puzzling question, but I happen to be more interested in it than puzzled by it, and I have

"I produced all kinds of doctors. They practiced any kind of medicine they wanted, but they weren't any worse than the people already practicing. Should I have worried about it? I never did."

more time to worry about these things. It turns out that what we need is a learning organization, not a teaching organization. It took time for some of us to get that through our heads—and I don't think it's through the heads of most Duke faculty yet—but I know you've got to have patience.

One corollary of this is that I've always advised students not to come to Duke. I never recommended the place. I think it's overpriced. In the end who's got to do the work of learning? It ain't the faculty. When the faculty works they get smarter but the student doesn't get any smarter. Only when students work do they get smarter. If a medical school is a learning system and the student is going to do the work, then I conclude that you ought to go to the cheapest medical school. The reason is simple. You won't be in debt when you get out and you will be just as well educated. I went to Emory at a time when it was on the accredited list one year and off the next. Fortunately, it happened to be accredited the year I graduated. It had no paid clinical faculty and a basic science faculty of 15 people. It turned out a surprising group of students. In my class, six or seven of us set up our own curriculum. We discovered that the books the faculty recommended to Emory students were more suitable for the nursing school. We found out what our friends

who had gone to more illustrious schools were reading, got those books, and set up our own study group. I was kind of surprised to discover, when I went to Brigham Hospital, that I was the only person there from a small school, but I was the best-read intern. I wasn't the most knowledgeable because I had not taken the math, physics, and chemistry courses that I would have taken if I had been bright enough to know what college was supposed to do for me. But I was much more widely read in clinical medicine. I—Dr. Greenfield doesn't believe this—was the only intern who could interpret an ECG. So there were some advantages in "learning" rather than being "taught."

Now, the medical faculty does have a role. They can get buildings put up; they can make some laboratories; they can get some books in the library; they can put in a few computers. They can offer some guidance to students about where they think the world is going and where, were they coming along today, they would put their energy. And the faculty, for better or worse, selects the student body. You would have thought that the faculty, having spent a lot of time on and given a lot of thought to this, would have come up with a superior way of choosing students. But, in fact, the faculty has a simple way of selecting students. It's a method universal to all schools; Duke's no exception. They select students who won't cause the faculty any trouble. This is the reason that organic chemistry, which in my day was purely a memory system, used to be so important. If you could memorize organic chemistry, earn an "A," and tolerate, not rebel

against the memory system, you clearly weren't going to cause any trouble in medical school. Well, when you get these memorizers here how can you get a learning system to work?

These thoughts made me pleased with the changes we made in the Duke curriculum in 1966. I thought they contained the seeds of something good. I had watched other medical schools mess with curriculum and never make any difference. You know, it honestly doesn't matter whether you teach physiology before anatomy or bacteriology before oncology. You can wiggle those things around but you don't really change anything. To make a change in the education of a doctor you have to do it at the clinical level. In the end that's what doctors do. Duke is the only school I know that's ever really done anything to change its clinical curriculum. We did it by simply saying that you can't hold in your mind all the basic science. No matter how long the curriculum lasts you'll still end up with lots of things you don't know. You might as well shorten the whole business—say what science can contribute to the practice of medicine, how it can prepare one for a variety of careers, and let patients show the students or learners what medicine really is. By getting students into the patient arena sooner they might discover that doctors really don't know much and can't do much

about most diseases. After that they could figure out how to handle their education so that they would be different from those doctors who don't know anything.

Medicine still attracts very smart students who, if you inspire them with the learning habit, will do a great many things. The tragedy has been that the basic science faculty never really figured that what students are taught in year one is kind of irrelevant to what they're going to do in year 15. They never determined how to make a difference in what the students thought. It's an unfortunate situation because faculty have an opportunity to interact with a very bright group of people.

I would have preferred to teach the basic sciences as though they were languages. Take biochemistry, for example. If we said we're going to look at biochemistry and decide what students really need to know in order to be able to read a biochemical journal—and if we did the same thing with the other sciences—we would have a group of students prepared to continue their education. Then we could say that the basic science year was a learning year, not a memory year. The basic science faculty would have had the opportunity to enjoy being with a bright group of people who now seem to only irritate their

teachers. It's unfortunate, given all that talent and potential for excitement, to end up with irritation. Students don't need eight more lectures on material that they will promptly forget and never use again. We could just enjoy the adventure and say: "Let's go! These are the areas you ought to be thinking about. These are

"Medicine still attracts students who... will do a great many things. The tragedy has been that the basic science faculty never really figured that what students are taught in year one is kind of irrelevant to what they're going to do in year 15."

the things you ought to be doing. This is the learning you ought to be getting." If the basic science faculty did that students would flow back to them in the elective third year. But as long as they stick to the task of cramming in the most facts in the shortest time and the hell with you, very few students return.

One of my residents is now a distinguished professor of Medicine on the West Coast. He called me a few years ago and said, "I really am sorry the Duke curriculum change turned out to be such a failure." I said, "Well, that's kind of interesting. You live a long way away. How could you tell it failed?" He said, "Well, nobody else has ever adopted it and, therefore, it had to be a failure." And, I said, "Well, wait a minute. You go look at the structure of all the other medical schools and you'll see they have an extraordinarily diffuse power base. At the time the curriculum was changed, Duke had a very narrow instructional power base. We weren't diluted out by separate departments of Orthopedics, Neurology, or Dermatology. We had Medicine, Surgery, Pediatrics, Psychiatry, Obstetrics and Gynecology, and that was it. We could do things that no other medical school could do and we did them." The reason no other medical school has followed course is because we accepted the fact that we would graduate students who didn't know every-

thing. You will be amazed to learn that other schools don't do that. They couldn't afford to have students leave medical school without those long, arduous memory courses to protect them against all contingencies in the future.

One of the things I'm the proudest of is that in the third year a Duke student can go into a laboratory and think about how knowledge is created and what it means. That student can learn to say "I don't know," and say it comfortably. My thesis, of course, is that the only safe doctors are those who can say "I don't know, but I'll go find out and if it's important I'll learn it and use it." Doctors who can't say "I don't know" comfortably are dangerous. It doesn't matter how many lectures they have sat through. You can't protect yourself by the memory system, you've got to protect yourself by enjoying yourself and saying, "I want to learn. I want to use what I know. I want to discover what I don't know that I should know."

We gave oral examinations at Duke for many years. The students wondered why we gave them. They thought Dr. Stead had sadistic instincts. But, in all honesty, the faculty felt that students should become comfortable with authority figures, and that being able to answer simple questions orally was a part of growing up. Now, I was tremendously bored, but I participated for 20-odd years without telling anybody. My one rule was to always ask the simplest questions because I knew that they were the ones nobody was going to be able to answer. The

rest of the faculty thought that every student would know those answers. I knew no one knew them because I wandered around the hospital and asked students these questions. I visited other medical schools from time to time and talked to other professors. They would tell me what they were doing and how they were doing it and I was always curious how they knew what their students knew. They said, "Well, we've taught them. They have to know this." We always had a lot of people around Duke who thought they'd been teaching too. But do you know what happened when I went out on the ward, picked up a few students, visited patients, and asked a few simple questions? Our students didn't know any of the answers either—they had been "taught" but they hadn't learned. So my role in those oral examinations was to keep the faculty from thinking that the students had a knowledge base that they didn't really have. We needed to come to grips with this.

Over the years I've really enjoyed the mix. I enjoyed getting out among the patients. I enjoyed seeing those patients that the resident told me were "boring." I wanted to see them because I discovered that they were extraordinarily interesting. And the resident wished he had never made that statement. It's been a great adventure, and you've been very patient to come to listen to what clearly isn't either science or education, but Gene Stead who's enjoyed being with you. □

Commentary

By Joseph C. Greenfield, Jr., M.D., James B. Duke Professor, and chair, Department of Medicine, Duke University Medical Center, Durham

Dr. Stead is a unique and remarkable man; we'll "not look upon his like again." Although he made numerous seminal contributions to the development of Duke University Medical Center, he is remembered primarily as an educator. He devoted an enormous amount of time and effort to this endeavor.

Currently the standard teaching assignment for Duke University Medical Center faculty is one month per year as general medicine ward attending. Many of my colleagues complain that this is an excessive burden. Dr. Stead functioned as an attending physician 11 months each year. Because of this dedicated effort he had a major impact on the training of young physicians throughout the time he was the department chairman. His approach was to always challenge the learners to not only understand the disease process but also how the disease affected the individual.

There are many "pearls" of wisdom in the Lecocq Lecture, and it should be read and studied by anyone interested in the training of physicians. His insight regarding the necessity for

young physicians to be comfortable with disease as the initial point of training is, in my opinion on target and extremely important. The current, "politically correct" concept that students and house staff should be trained in an outpatient setting (since that is where they will practice) is unlikely to produce a confident physician. Educators who think otherwise should heed Dr. Stead's wisdom.

The distinction articulated by Dr. Stead between teaching and learning is an important and frequently forgotten concept. There is a vast difference between providing a basic framework for lifetime learning and the teaching of a multitude of soon-forgotten facts. Dr. Stead championed the development of strategies to augment learning both during medical school and house staff training.

Although this lecture was billed by Dr. Stead as his "swan song," it is certainly my hope and expectation that he will continue to enlighten us for many years to come. □

Presenting The Full Line of NCMS-Endorsed Office Automation Products From The Cactus Group



The Cactus Group is the answer when you're looking for office automation software and hardware. It's also endorsed by the North Carolina Medical Society. With Cactus medical office management products you have the NCMS "Seal of Approval" on your practice's record-keeping system—and with our ten years of experience and dedication to customer service, we're sure you'll put your seal there, too!

The Cactus Group offers: *Software*

Cactus/MD	Accounts Receivable/Patient Billing practice management system
InSURE/Link	Program linked to Cactus/MD for filing claims electronically
InSURE	Stand-alone program for filing claims electronically
Cactus/MR	Third party medical records package for storing and retrieving patient data—lab flow, drug flow, progress notes, and more
Cactus/AS	Appointments and scheduling with automatic encounter form printing, graphing, search and reporting capabilities
Cactus/IN	Inventory control program
Cactus/FB	Front to back office notification of patient arrival
Cactus/WP	Third party word processing package
Cactus/AC	Third party accounting packages for general ledger, accounts payable and payroll

Hardware & Technical Support

Cactus offers a complete line of Digital Equipment Corporation, Compaq and IBM compatible hardware. Cactus also offers Certified Network Engineer level technical support on the systems we install.

Training & User Support

Just as important to your success are our experienced user support personnel who provide comprehensive on-site training and unlimited toll-free telephone support for our systems.



For complete information, or to schedule an appointment with a Cactus representative, contact
The Cactus Group, Ltd.

Call (800) 849-9550 • Fax (919) 481-9307



Physicians With Good Communication Skills Are Made, Not Born

Jorge Carreras, M.D., FACEP

Communication between physician and patient is a necessary part of medical care. Diagnosis and treatment depend on the physician's ability to gather and exchange information with the patient. And the impact of effective communication goes far beyond merely enhancing diagnosis. Patient satisfaction¹ and improved patient outcomes² both correlate closely with information-giving on the part of the health care provider. Effective physician-patient communication is also a deterrent to malpractice suits. An article in the *Maryland Medical Journal* cited poor communication between physician and patient as the single most common cause of malpractice suits.³

Despite the advantages of good physician-patient communication, most medical training has usually included little effort to impart communication skills in a systematic way. Popular wisdom in the medical community holds that some physicians are born with a good bedside manner yet others will never possess it, no matter how hard they try. My experience as a faculty member in the Miles Program for Physician-Patient Communication has convinced me that this is simply not so. Any physician can learn to become a good communicator. Just as we continuously learn new or improved medical procedures, we can adopt specific communication techniques that can ultimately lead to better clinical outcomes.

Dr. Carreras is a family physician and an emergency medicine physician at Memorial Mission Hospital in Asheville.

The Four-E Model

In the past year I have led communication workshops involving 123 medical directors for Coastal Emergency Services in North Carolina, Texas, Ohio, and Washington, D.C. The workshop format was developed by the Pharmaceutical Division of Miles, Inc., in 1989 to meet the needs of physicians. Attendees receive category class I CME credit for completing the four-hour course. Insurance carriers in five states offer malpractice insurance discounts to physicians who complete the course. The workshop is based on a communication model characterized by four Es: engage, empathize, educate, and enlist.

The four-E model goes beyond the traditional "find it, fix it" approach to the medical interview. The core of the four-E model is a series of simple, easily applied techniques that incorporate the psychological, sociological, and behavioral aspects of medicine.

Engage. A study by Beckman and Frankel showed that physicians interrupted patients within 18 seconds of beginning an interview.⁴ Once interrupted, patients readily relinquish control over the dialogue to the physician who, at such an early stage, may not have sufficient information to make a correct diagnosis or to channel the flow of information from the patient. Therefore, it is important to set the proper tone early in a visit by allowing the patient to speak freely about the reasons for the visit. Instead of asking yes-

no questions, we encourage open-ended inquiries such as "What else have you noticed?" and "Please tell me more about that." This approach does *not* unduly lengthen the interview, yet it makes patients feel that they have fully expressed their concerns. The Beckman and Frankel study showed that, when given the opportunity, patients completed their statements in less than one minute.

Avoid crossing your arms or reviewing the medical chart while the patient is talking. These behaviors make you appear indifferent and make the patient reluctant to speak openly. Sometimes patients are already hesitant about voicing the real reason for their visit, and you need to give them time to work their way around to it. Encourage them to talk about all their concerns by asking, "What else is on your mind?"

Most patients have a set of beliefs about health care and their own health. These beliefs are based on personal and anecdotal experiences. By asking, "What do you think is causing your problem?" you may illuminate these beliefs and provide insight into the patient's expectations, as well as to whether the patient will accept your diagnosis and treatment recommendations.

Empathize. When patients feel that their input is important, that the physician is interested in their emotions and concerns, and not just their physical symptoms, they are more likely to open up and provide valuable information.

Try to greet the patient while he or

she is fully dressed rather than in an examination gown. Keep the exam room or consultation area private and free from distraction and interruption. Remove physical barriers, such as a desk or even the patient's chart, that separate you from the patient. Make eye contact.

Invite the patient to talk about the emotional as well as physical dimension of his or her problem. Comment directly on those emotions and demonstrate your understanding of those feelings. In some cases, it may be appropriate to share a personal experience that may help patients deal better with their condition.

Educate. Once you understand your patient's concerns and expectations and have diagnosed his or her illness, you must educate the patient by carefully explaining and discussing your conclusions and recommendations. Treatment adherence is much more likely when patients see that they are equally responsible for the final decision. Therefore, try to approach this discussion as a negotiation.

When presenting a diagnosis, say, "This is the conclusion I've come to based on.... How do you feel about that?" "Do you think it could be something else or something more?" "What have you been thinking or wondering about?" These statements invite patients to share their understanding and beliefs. Moreover, the answers to these questions give you an opportunity to correct misconceptions and ensure that patients fully understand and believe your explanation. For example, you might find that a patient refuses to accept a diagnosis of diabetes because he or she does not crave sweets.

All patients want to have certain questions answered: "What has happened

to me and why?" "What are you going to do about it?" "Will it hurt or harm me?" "How much?" "How long?" "When/how will you know what it means?" "Why are you doing 'this' rather than 'that'?" It is important to address these questions. A study by Greenfield and his colleagues showed that patients are more active in the care process when fully counseled about their condition, and that this affects the likelihood that they will follow therapy recommendations.⁵

Medical terminology is extremely confusing to most patients. It's important to keep explanations simple and medical jargon to a minimum.

Enlist. You have gathered the information, made your diagnosis and discussed it with your patient. Now comes the final, crucial step—enlisting the patient in the treatment plan.

Patient adherence to therapy is always problematic, especially with chronic illnesses. Studies have shown that patients generally adhere to prescribed treatment plans only 50% of the time and that this is a major barrier to successful treatment.⁶ In a survey sponsored by Miles, Inc., 54% of physicians polled thought poor adherence was a result of poor communication.⁷ Moreover, a study by Ley revealed that patients very quickly forget an average of 40% of what they are told by a physician.⁸

There are several techniques that can help improve retention of information and adherence to treatment. First, write down and repeat your instructions, using language the patient will understand. Ask the patient to restate the regimen in his or her own words to ensure comprehension. This provides an opportunity to correct

misunderstandings. Ask if the patient has any trouble reading your instructions; don't assume literacy.

Negotiate and agree on achievable goals. Tailor treatment regimens to the patient's lifestyle and be prepared to make adjustments in dosage and treatment priorities that will accommodate any financial or social limitations that may make adherence difficult. Review with the patient any potential side effects so that he or she understands and is prepared to deal with these potential barriers to adherence. If appropriate, enlist the patient's family as a support system.

Summarize your discussions at the end of the patient's visit. Make sure that your expectations are the same as the patient's and acknowledge achievements, no matter how small.

Conclusion

The four Es outline the points that I emphasize in the workshop. Feedback from participant physicians has been positive. One told me of a patient who invariably had problems with adherence to medication. Using the techniques learned in the workshop, the doctor succeeded in enlisting both the patient and the patient's family in the treatment plan. The patient is now staying on the medication.

Good patient-physician communication is a process, not a gift. It is a process that yields tangible benefits. Good communication helps physicians "find the problem" by improving the data they get from talking to their patients. It helps physicians by enhancing patient comprehension, comfort, and therefore adherence to recommended regimens. □

References

- 1 Comstock LM, Hooper EM, Goodwin JM, Goodwin JS. Physician behaviors that correlate with patient satisfaction. *J Med Ed* 1982;57:105-12.
- 2 Bartlett, E, Grayson M, Barker R, et al. The effects of physician communications skills on patient satisfaction, recall and adherence. *J Chronic Dis* 1984;37:755-64.
- 3 Valente CM, Antlitz AM, Boyd MD, Troisi AJ. The importance of physician-patient communication in reducing medical liability. *Maryland Med J* 1988;37:75-8.
- 4 Beckman HB, Frankel RM. The effect of physician behavior on the collection of data. *Ann Int Med* 1984;101:692-6.
- 5 Greenfield S, Kaplan SH, Ware JE, et al. Patients' participation in medical care: effects on blood sugar control and quality of life in diabetes. *J Gen Int Med* 1988;3:448-57.
- 6 Haynes RB. A critical review of the determinants of patient compliance with therapeutic regimens. In: Sackett DL, Haynes RB, eds. *Compliance with Therapeutic Regimens*. Baltimore, MD: Johns Hopkins Univ. Press, 1976, pp. 26-39.
- 7 Miles Institute for Health Care Communication. Physicians' Opinions About Patient Communication and Therapeutic Efficiency, October 1986.
- 8 Ley P. Satisfaction, Compliance and communication. *Brit J Clin Psychology* 1982; 21:241-54.

Winchester[®]

Surgical Supply Company

Physician/

Hospital/

Home Care Supplies

3333 North Tryon Street
P.O. Box 35488
Charlotte, NC 28235
704/372-2240
800/874-2240

"Serving The Medical Profession Since 1919"

**Medical ♦ Surgical ♦ Laboratory ♦ Diagnostic
Equipment and Supplies**

Winchester Home Healthcare

Medical Supplies And Equipment For Your Patients At Home
Charlotte, North Carolina
704/332-1217

Holiday Footnote

Margaret N. Harker, M.D., chair, *Journal* Editorial Board

For many years, my colleagues and I sent each other Christmas cards and gifts. We exchanged beautiful, often elaborate, glossy cards. We sent flowers, boxes of delicious chocolates, large tins of popcorn, baskets of mixed goodies, and bottles of fine wines.

What were we doing? Business, pleasure, friendship, politics, thanks—all these were in our minds I am sure. We—friends and colleagues who had everything we needed—were exchanging things, most of which are on the “bad” side of the cholesterol and calorie charts! Ah, the gifts were delicious and beautiful! My “girls” and I all enjoyed them. We do love flowers and we all have a sharpened sweet tooth in the shorter, darker days of winter.

Last year, I decided that our practice amounted to giving “stuff” to those who least needed it. So, I changed things. I donated money to a local charity and sent a notice of the donation in the Christmas cards I sent. Many others seem to have had the same feelings. Last year, the deluge of ribbon-festooned goodie boxes was replaced for the most part by notes announcing charitable donations—notes enclosed in still lovely cards. We were not completely bereft of candy and flowers,

however. Our patients still dropped in with homemade goodies and fragrant flowers.

What a good change this has been! What better way to give a “hug” and show appreciation of one physician for another than to give the money that we used to spend on welcome but unneeded “stuff” to those less fortunate than ourselves? We have a job. We have food. We have an education. We do well enough in our lives. And best of all, we can make a difference to our patients and in our communities.

I want to thank all my colleagues. Thanks from the varied charities and the people who need their services and support. Once, after a local disaster, I was asked what would happen if we physicians were asked to donate services, dollars, or time to if there were another disaster. I said, “Let’s just do it again.” Let’s all do it again. Let’s support each other day to day, let’s exchange cards and letters, and let’s continue to honor our professional relationships by helping in our communities, wherever and whenever we can.

Best wishes to everyone for their own and their families’ health, and Happy New Year. □

Home for a Bunny

David S. Pisetsky, M.D., Ph.D.

We were eating breakfast when Daddy asked me if I wanted to visit Mommy in the hospital. Daddy makes me the same breakfast every day. Corn Pops and milk and two pieces of toast. He puts butter on one piece and jelly on the other. Daddy's breakfasts aren't as good as Mommy's. Mommy used to get up early to make me pancakes. She would put syrup on the pancakes and sometimes strawberries too.

"Do I have to?" I asked.

"Mommy would like it," he said.

I get scared when I go to the hospital. Next to Mommy's bed is a large machine that makes loud noises. Daddy says the machine helps Mommy breathe. Once, I touched one of its buttons. An alarm went off and all the nurses came running and they looked worried. The nurses told me not to do that again.

Mommy doesn't look pretty anymore. Her face is swollen and her lips are blue and she doesn't have any hair. Before she got sick, she would let me comb her hair and then she would comb mine. I liked it when she would tie my hair in a ponytail with a ribbon. Daddy says he doesn't know how to do ponytails so now my hair is loose. Mommy used to say I look like a ragamuffin when my hair is loose.

Mommy is in a room with other sick people. They look old, even older than Grandma. When I visit Mommy, the nurses say I should talk to her. They say she can hear me and that my voice will make her feel better. I don't think that she can hear anything. She just stares and looks sad.

"Will I have to miss school again?" I asked Daddy.

"Yes, kitten," he said.

I like my school very much. We moved here so that Mommy could get treated at the hospital and she promised me that she would find me a school that was nice and maybe even better than the one at home. She was right. My new teacher Miss Robbins is lots of fun. She lets us call her Miss R, and she says that I shouldn't worry if I don't finish my homework, because I may have things on my mind.

My classroom has a turtle, a gerbil, and a rabbit named Hopalong. Every weekend someone takes Hopalong home to take care of him. I want to do that too and Miss R said she would check with the hotel we're staying at to see if we can keep Hopalong for the weekend.

My classroom is neat. We have a special place we can climb into when we want to read and we sit at tables. Andrea, Margaret, and Cathy sit at my table. They're real nice and Andrea owns a horse. Daddy said I could visit Andrea someday and ride the horse.

Sometimes in class we get silly and laugh and laugh. Miss R tells us that we should be quiet and not disturb the other students but I don't think she minds if I laugh. I'm going to miss Miss R when I go home. I'm going to miss Hopalong too.

Last week after we saw Mommy, I asked Daddy when we're going home. He didn't know, he said. It all depended on how the medicines for Mommy's cancer worked. I asked whether Mommy would come home if they didn't work, but all he said was "Let's hope so."

"Kitten, do you want to go the hospital today?" Daddy asked again.

"Can I go tomorrow, Daddy? I'd rather go to school today. Is that okay?"

"Sure," he said. "I'll say hello to Mommy for you. Do you want me to tell her anything?"

"Yes," I said. "Tell her that when she comes home maybe we can have Hopalong for the weekend. Would she like that?"

"She'd like that, kitten," Daddy said. "Probably more than anything in the whole world."

"Daddy," I asked. "Could you learn how to do something?"

"Sure. What is it?"

"Tie my hair in a ponytail." □

From the Department of Medicine, Division of Rheumatology and Immunology, Duke University Medical Center, Durham 27710.

ACCUSCRIBE, INC.

5 North Lafayette Street
P.O. Box 1511
Shelby, North Carolina 28151-1511

MEDICAL TRANSCRIPTION FOR PHYSICIANS'
OFFICES AND HOSPITALS

WE OFFER:

- ** Professional quality transcription on your letterhead or forms that meet your specifications
- ** Lanier Telestaffing capability
- ** Dictation may also be done over toll-free telephone line via Digital Analog Communication System
- ** Direct-line printing capability
- ** Service available 24 hours a day
- ** Confidentiality of records guaranteed

FOR MORE INFORMATION CALL:
(704) 480-6854

AFFORDABLE

MEDICAL OFFICE MANAGEMENT SYSTEMS
MEDI SOFT & PROSPECTUS MEDICAL
OFFICE SYSTEMS—STARTING AT \$500

Electronic & Paper Claims System
Single & Multi-User
LAN Networks - Novell LanTastic®
Insurance Billing System
In Office Staff Training & Support
Medical Office Records System
Multiple Reports Available
Customization Available

FOR MORE INFORMATION PLEASE CALL:

PROSPECTUS COMPUTER SYSTEMS
847 WEST LAKE DRIVE
MT. AIRY, N.C. 27030
(919) 789-8490

Ode to the Carotids

*To scrape or not to scrape,
that is the question*

Tell, oh, tell me nuchal vessel,
Do horrid plaques obscurely nestle

Along the course of your intima,
Without the hint of the

Possible mess it'll create in my cerebration,
Defying all explanation—aberration?

May I expect a diagnosis—
As for instance—a psychosis?

Is your lining scaly, scrunchy;
Or have the years just made me punchy?

In my neck is there a bruit,
Or something more, equally screwy?

Deposits calcific?
Please be specific.

The arteries in my head—
Dying or stone dead?

You carotids threaten my erudition;
Loss of soul, eternal perdition?

Are x-rays, cats, and ultrasound,
Really all that ultra sound?

Better to delay and pray,
Or suffer the risk of a TIA?

Gosh oh gee—these conduits in my neck
Are making me a total wreck...

—By Courtland J. Berry, M.D., Blowing Rock

The *Journal* is pleased to publish original poems, letters, essays, and opinion pieces penned by its readers. Send submissions to: **North Carolina Medical Journal**, Box 3910 DUMC, Durham NC 27710; 919/286-6410; fax: 919/286-9219.

Free Report Reveals 10 Ways To Fight Back Against Bill Clinton's New Tax Increase!

Raleigh, NC — Jerry was really mad now. "I can't believe I'm getting nailed this bad. I seem to be supporting the national debt myself!" he thought to himself.

Once again, he had to write a big check with his tax return. Once again he had been told by his "tax advisor" that, "There is nothing you can do about it. You know that we're doing all that we can."

Somehow Jerry knew that his accountant had to be working for the IRS. "He must be. Why would he be so willing to roll over and play dead for the government?"

As Jerry finished subtracting the amount of the check to the IRS from his checkbook, he was staring at a pile of unread newspapers on the coffee table. There was a headline on yesterday's paper that said "Congress Admits That New Taxes From Clinton Tax Bill Will Go To New Spending And Not Deficit Reduction."

Jerry started to get hyper. He read the article and got even worse. The reporter explained

how the new Congress and Administration felt everyone had to chip in to pay for all the new spending that was needed.

The story went on to say that while new taxes were inevitable, there were still many loopholes and strategies to reduce taxes legally, and that most taxpayers never used even a small percentage of the secrets the IRS preferred people didn't know. *"If people only knew how many ways there were to reduce their taxes, they wouldn't be complaining so loudly!"* the article ended.

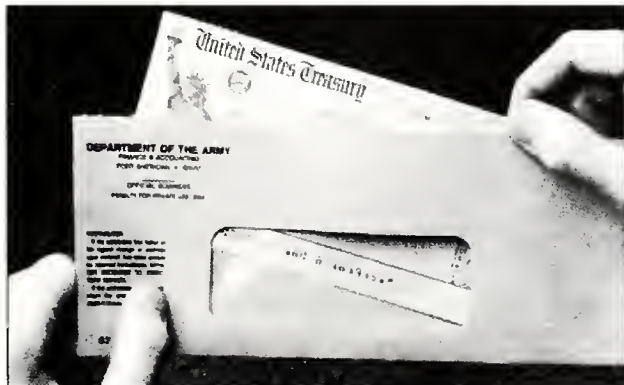
Jerry had enough. "I'm going to fight back legally! I'll never again be a patsy!" He knew that starting tomorrow he was going to stop complaining and take action.

As he picked up the telephone, he vowed that he was going to learn "The 10 Tax Saving Secrets The IRS Didn't want him to Know." A copy of this FREE REPORT is available by calling the 24 hour toll-free recorded message line listed below.

Call 1-800 723-4779, 24 Hrs, for FREE Recorded Message and Report

SURGEONS: COULD YOU USE AN EXTRA \$9,000?

If you're a resident in surgery, the Army Reserve will pay you a yearly stipend which



could total in excess of \$9,000 in the Army Reserve's Specialized Training Assistance Program (STRAP).

You will have opportunities to continue your education and attend conferences, and we will be flexible about scheduling the time you serve. Your immediate commitment could be as little as two weeks a year, with a small added obligation later on.

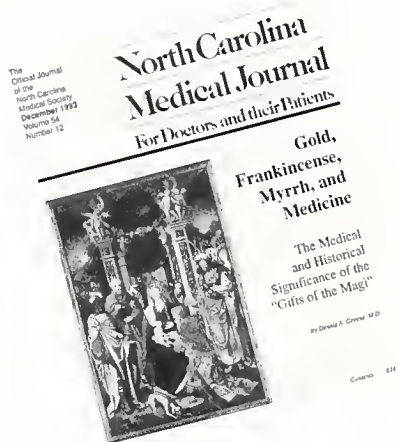
Get a maximum amount of money for a minimum amount of service. Find out more by contacting an Army Reserve Medical Counselor. Call:

Collect 919-493-1364

ARMY RESERVE MEDICINE. BE ALL YOU CAN BE.®

The North Carolina Medical Journal

Recommended Reading for All Physicians and Health Care Professionals



Each month, the **Journal** presents a lively and diverse mix of articles on medical and health care-related topics, from scientific to socioeconomic, plus a special pull-out section written for patients.

Physicians in all specialties as well as health care professionals in other fields read the **Journal** because it provides them with information pertinent to their community, their practices, and their professions.

Subscribe for yourself, or treat a friend or colleague to a 1-year gift subscription by simply filling out the coupon below.

Method of Payment:

☐ \$17 enclosed, payable to the North Carolina Medical Journal. (NC residents add 6% sales tax = \$18.02)

☐ Charge to: VISA _____
M/C _____

Name on Card: _____

Account #: _____

Expiration Date: _____

☐ New ☐ Renewal

Send to: The North Carolina Medical Journal, Box 3910, Duke University Medical Center, Durham NC 27710.

Please start my 1-year subscription*:

My Name _____

Address _____

City/State/Zip _____

Please send a 1-year gift subscription to*:

Name _____

Address _____

City/State/Zip _____

*Please allow 4-6 weeks for delivery of the first issue.

Concurrence of Occlusive Arteriosclerosis of the Lower Extremities and Coronary Artery Disease

And How a Surgeon and Son Have Shared Quality Time

Thomas W. Powell, Sr., M.D., with Thomas W. Powell, Jr.

How can busy physicians find time for their families between the pull of practice? How can physician-parents and their children find ways to share quality time that let them learn together and learn about each other? Finding answers to these questions is not easy. So, often, the day to day lives of physicians and their children are mysteries to each other. My son and I came up with an answer to this problem that has suited us well.

This report outlines how we have managed to share quality time. We learned a lot about one another and what each of us does every day. This report serves another purpose. It reports scientific information about the concurrence of arteriosclerotic occlusion in the arteries of the lower extremities and the heart. That nemesis of all school kids, the yearly science project, provided the opportunity for my 10-year-old son's and my daily lives to overlap. Thomas Jr. chose to study something I deal with every day—arteriosclerosis. This was the key to letting us share time: it provided a mechanism for our "work" lives to overlap.

Thomas Jr. has long been interested

in biology, especially human health-related sciences. Since my wife and I are both health professionals, there is little wonder that he would be. He has found blood vessels especially interesting, and understands that blood carries oxygen and nutrients to tissue. Living in our health-conscious family, he has learned what arteriosclerosis is and knows about arterial obstruction. The detailed chemistry of the atherosclerotic plaque is beyond his current level of comprehension but the concept of blood vessel blockage by plaque is not.

Science projects can be formulated as either a research project or as a demonstration of a scientific concept. Two years ago, in an earlier project, Thomas Jr. had learned a method to determine if leg arteries are blocked. He used a hand-held Doppler ultrasound and blood pressure cuff to measure arterial pressures in the arm and at the ankle. He learned that blood pressures are normally the same in the arm and at the ankle. When leg arteries are blocked, the ankle pressure was lower than the arm pressure. This earlier project took the form of a demonstration of well-known concepts.

This year, however, Thomas Jr. has used the techniques he learned earlier and

the basic concepts he has studied to come up with a hypothesis and a way to test it. He has created a simple, but genuine, scientific study based on what he learned in his prior demonstration study. What could be more exciting for a parent than watching a child's skill and intellect grow? Aware that arteriosclerosis can involve arteries anywhere in the body, Thomas Jr. questioned whether blocked leg arteries meant that other arteries would also be blocked at the same time. He knew that heart pain and "heart attacks" were caused by blocked coronary arteries. He wanted to find out whether people with blocked leg arteries were more likely to have evidence of blocked coronary arteries than people with normal leg arteries.

He personally tested some people for blocked leg arteries and asked them about any history of blocked coronary arteries. Since he knew that I studied people's leg arteries and recorded a general arteriosclerotic history—including heart disease—in my peripheral vascular lab, Thomas Jr. asked me if he could review ankle and arm blood pressures and the heart histories in some vascular lab results. He had come up with the approach on his own, we felt it a reasonable study, but my supervision was re-

From Powell Surgery Clinic, 320-C Copperfield Blvd., Concord 28025.

quired to keep the records anonymous. Thomas Jr. reviewed records on 110 people and also included the data that he personally collected on eight people.

A science project must be the student's own and this one met the crite-

ria. My son had arrived at a hypothesis, designed a study, and collected data. He analyzed the data and then put together the presentation for the science fair.

This project was a simple scientific study, but simplicity is a key to good

scientific research and to providing easily communicated data. In this case, Thomas Jr. was able to reach a significant conclusion based on solid principles of research and documentation. Following is the abstract of his report on the project:

If People Have Blocked Arteries in Their Leg— Can They Have Blocked Coronary Arteries in Their Heart?

By Thomas W. Powell, Jr.

I know that arteriosclerosis can block arteries. If people have blocked arteries in their leg, can they have blocked coronary arteries in their heart? In my 1990 science project I determined a way to find out if you have blocked arteries in your leg. Using a blood pressure cuff and a Doppler, I compared blood pressure in people's ankles to blood pressure in their arms. The pressure in the arm should be the same as the pressure in the ankle. If the ankle pressure is lower than the arm pressure, the leg artery is blocked. By using this method I determined if there was blockage in the leg arteries of people studied. In my current project I used what I learned from my old project. I had a way to find if someone's leg arteries were blocked. I reviewed the vascular Doppler test records of 102 people whose leg arteries were studied this way. I recorded the findings of eight other people I studied myself. Then I reviewed the history of each of these people to see if they had a history of blocked coronary arteries. We found two groups of patients. The first was 78 people with blocked leg arteries. Sixty-one people, or 78%, had blocked coronary arteries. Seventeen people, or 22%, had no coronary artery problems. The second group was 32 people with normal leg arteries. Six people, or 19%, had blocked coronary arteries. Twenty-six people, or 81%, had no coronary artery problems. This study indicates that people with leg arteries blocked by arteriosclerosis are much more likely to have findings of blocked coronary arteries than people without blocked leg arteries. People with blocked leg arteries are at high risk for having findings of blocked coronary arteries (Fig. 1).

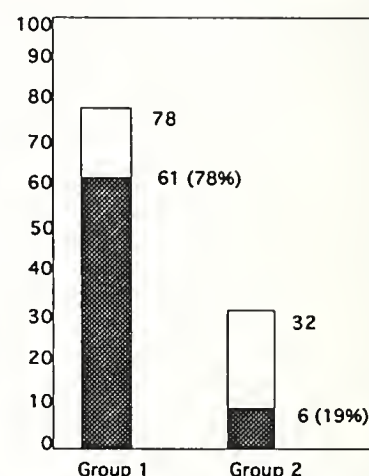


Fig. 1: Group 1—people with occluded leg arteries. Group 2—people without occluded leg arteries. Shaded areas represent people with coronary disease.

The study itself has scientific merit. Risk factors for coronary artery disease are discussed in the literature at great length, and documentation of the multicentric occurrence of atherosclerosis has been the subject of a number of prior studies.^{1,3} In 1956, Young and Gofman noted that coronary artery disease occurred in people with cerebrovascular arteriosclerosis; Jurgen and colleagues noted that 25% of their subjects with arteriosclerosis obliterans died of myocardial infarction. My son and I report here a retrospective study that documents the degree of concurrence between segmental arteriosclerosis obliterans in the

legs and in the coronary arteries. (The findings have statistical significance using the chi-square method.)

But more than simply involving parent and child, we found that a physician-parent can be the teacher of a special gift. What a constructive resource for any child, to have a motivated, educated, and skilled teacher at his or her service! Better still, a teacher who loves that child and commits to him or her the best of instruction. In our case, the lessons my son learned in a simple study of vascular disease are far-reaching because the application of sound scientific principles is the same at any level of sophistication. Thomas Jr. was

able to employ the true scientific method and was surprised at how simple the study was. More importantly, he was thrilled at finding something important. I was thrilled to watch my son grow and to see his excitement. We looked for common interests and shared them. Although my son learned something about why I do what I do and why I can be so busy, I learned too. I saw how hard it can be for a 10-year-old to get his father's attention. I learned how busy a little boy's day is on a little boy's level. I learned how interested a little boy can be in what his Dad does—especially when Dad is willing to give him the attention he needs. □

References

- 1 Singer A, Robb C. The fate of the claudication. *Br Med J* 1960;2:633.
- 2 Young W, Gofman JW, et al. Interrelationships between cerebral and coronary ath-

- eriosclerosis. *Geriatrics* 1956;2:43.
- 3 Jurgen JL, Barbor NW, Hines EA Jr. Arteriosclerosis obliterans: review of 500 cases

with special reference to pathogens and prognostic factors. *Circulation* 1960; 21:188.

WOMBLE CARLYLE SANDRIDGE & RICE

HEALTH CARE ENVIRONMENTAL MANAGEMENT GROUP

R. Howard Grubbs

Karen Estelle Carey

Lori P. Hinnant

C. Elizabeth O'Keeffe

Concentrating in environmental planning, compliance, negotiation, and litigation on behalf of health care facilities, including construction matters, underground storage tanks, Superfund, medical waste disposal and transportation, lead contamination, air quality issues and EPA and OSHA regulations.

Winston-Salem

1600 Southern National Financial Center

P.O. Drawer 84

Winston-Salem, NC 27102

(919) 721-3600

It's your choice:

**4 hours at 4 auto dealers
haggling over \$400**

or

**4 hours on the links with
your favorite foursome.**

That's right. While you're attending to more pressing issues, Auto Brokers International can locate the best deal on the car of your choice. We shop, we haggle, we negotiate. **And, if we can't save you time and money, we don't get paid. Period.**

787-1098

Long distance
1-800-645-6413

**AUTO BROKERS
INTERNATIONAL, INC.**

3301 Woman's Club Drive, Suite 127
Raleigh, North Carolina 27612
(919) 787-1098 FAX 787-1098



"Ron's Rule—I give myself one week to meet new people and start having fun on a locum tenens assignment. It hasn't failed me yet."

Ron Richmond, MD, joined the CompHealth locum tenens medical staff when he completed his residency. He wanted to travel. He loves to meet people.

A little time off sounded really good. And he thinks being exposed to different types of medical practice will serve him well when he returns to his hometown to establish a community health center.

A singer. A board-certified family practitioner. Soft-spoken for a New Yorker. Ron Richmond knows...

**It's a great way to
practice medicine**

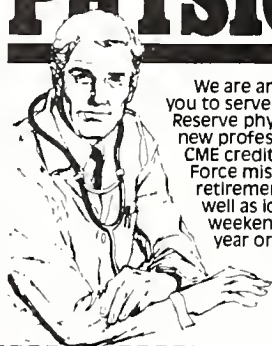
CompHealth

L O C U M T E N E N S

1-800-453-3030

Salt Lake City ■ Atlanta ■ Grand Rapids, Mich.

PHYSICIANS



We are announcing opportunities for you to serve your country as an Air Force Reserve physician/officer. You can make new professional associations, obtain CME credit and help support the Air Force mission. For those who qualify, retirement credit can be obtained as well as low cost life insurance. One weekend a month plus two weeks a year or less can bring you pride and satisfaction in serving your country.

CALL:

Or Fill Out Coupon and Mail Today!
To: MGST Linda Landrum
2400 RRMS/RSH-1
Bldg 1000, Room 112
Charleston AFB, SC 29404-6004

Name _____

Address _____

City _____ State _____ Zip _____

Phone _____ Prior Service? Yes _____ No _____

Medical Specialty _____ Date of Birth _____

AIR FORCE RESERVE

25-301-0009

A GREAT WAY TO SERVE

Continuing Medical Education

December 6-12

The 5th International Psychology of Health, Immunity and Disease Conference

Place: Hilton Head, SC

Info: Janet Lowe, The National Institute for the Clinical Application of Behavioral Medicine, 203/456-1153

January 6

ACLS Retraining Course

Place: Raleigh

Credit: 8 hours AAFP

Fee: \$75

Info: Helen Creech, Course Coordinator, Rex Hospital, 4420 Lake Boone Trail, Raleigh, NC 27607. 919/783-3161

February 25

The Rafael C. Sanchez Family Medicine Annual Update—Current Concepts in Family Medicine

Place: Greenville

Credit: 7 hours Category I, AMA

Info: Office of CME, ECU School of Medicine, 919/816-5208

February 28-March 3

The Alton D. Brashear Postgraduate Course in Head and Neck Anatomy

Place: Richmond, VA

Credit: 44 hours Category I, AMA

Info: Dr. Hugo R. Seibel, Department of Anatomy, Box 709, Medical College of Virginia, Richmond, VA 23298. 804/786-9624

March 4-5

The Duke Dysphagia Symposium: Current Clinical Challenges

Place: Duke University Medical Center

Credit: 11 hours Category I, AMA

Info: Office of CME, Box 3108 DUMC, Durham, NC 27710. 800/222-9984

March 30-31

18th Annual UNC Lineberger Comprehensive Cancer Center Symposium: Viral Pathways to Cancer

Place: UNC Chapel Hill

Info: Sarah Rimmer, 919/966-3036

Letters to the Editor continued from page 616

plain why law journals advertise lists of physicians who are willing to provide testimony in court cases? Does she honestly believe that these physicians are acting upon purely altruistic motives and have no interest in remuneration? How does Ms. Lischer respond to the fact that many times "expert witnesses" are actually *not* true experts and their credentials are readily shot down in a courtroom? Of course, by then it is often "too late" for the defending physician, who has already expended two to three years of time and endured emotional duress in attempting to prepare for a suit that was non-meritorious in the first place.

I do not believe that letters to our legislators in Raleigh have much effect, but I urge all of my colleagues to write such letters urging immediate action on malpractice reform. At the least, some type of screening panel should be formed to weed out non-meritorious cases. There is a difference between citizens having "access to the system" and abusing the system by interpreting the tort system as a state lotto.

I support every statement in Dr. Councell's letter. Ms. Lischer's response was worth printing only to demonstrate the deficiencies in the tort system that she unintentionally confirmed to be present.

Peter Goodfield, M.D.
Hendersonville Cardiology
P.O. Box 1550
Hendersonville, NC 28793-1550

New Members

Mohammad Aktzaruzzaman, ECU School of Medicine, Greenville 27858

Fabian Eduardo Alzamora (GS), 403 Wood St., Troy 27371

Marshall Wilson Anderson, III (RESIDENT), 2515 Birnen Drive, Charlotte 28210

Henry Maynard Bellamy, Jr. (IM), VA Medical Center, 1601 Brenner Ave., Salisbury 28144

Miriam Michelle Berrey (RESIDENT), 106 Hilton Ave., Durham 27707

Fredric Blum (D), 823 Broad St., Durham 27705

John Anthony Carter (PA), 5482 Heritage Oaks Lane, Winston-Salem 27106

William Paul Ciesla, Jr. (RESIDENT), 4625-E Hope Valley Road, Durham 27707

Mario Frank Ciocca, Jr., (RESIDENT), 605 Jones Ferry Road, Apt. GG1, Carrboro 27510

Jennifer Beth Cohen (RESIDENT), 704 Snowcrest Trail, Durham 27707

John Reginald Collier, Jr. (OTO), 2450 Aberdeen Blvd., Gastonia 28054

Peter Joseph Conlon (RESIDENT), 3117 Synnott's Place, Durham 27710

Steven Arthur Cremer (RESIDENT), 2167 Dave St., Winston-Salem 27127

Mark Edwin Dentz (AN), 3611 University Drive, #14W, Durham 27707

Cynthia Jeanne Denu-Ciocca (RESIDENT), 605 Jones Ferry Road, Apt. GG1, Carrboro 27510

Fletcher Carl Derrick, III (RESIDENT), Carolinas Medical Center, 1000 Blythe Blvd., Charlotte 28232

James Lee Derrick (PA), Pine Ridge Family Practice, 7990 North Point Blvd. #100, Winston-Salem 27106

Dean Royle Ellis (RESIDENT), 201 Westbrook Drive, Apt. A-8, Carrboro 27510

Rebecca Dawn Filla (RESIDENT), 1313 Valley Run, Durham 27707

Patricio Andres Frias (RESIDENT), 712 Snowcrest Trail, 27707

Rona Marie Garm (PA), 1219 Upper Reach Drive, Wilmington 28409

David Dunn Gayle (RESIDENT), 251 Lucerne Lane, Winston-Salem 27104

Lisa Regina Gholston (RESIDENT), 3136-C Turtle Point Drive, Fayetteville 28304

Kenneth Ray Harris (PC), 1317 N. Elm St., Ste. I, Greensboro 27401

Paul Clyde Hendrix (PA), 708 Duluth St., Durham 27705

Angela Callaway Hind (IM), P.O. Box 399, 1204 Johnson St., Benson 27504

Sally Sockwell Ingram (RESIDENT), Box 3085 DUMC, Durham 27710

David Blackwell Jessup (STUDENT), 612 Hillsboro St., Apt. #2, Chapel Hill 27514

Timothy James Joos (RESIDENT), C-16 University Gardens, 800 Pritchard Ave. Extension, Chapel Hill 27514

Nancy Markham Joyce (PC), Thomasville Ob-Gyn, 1302 Lexington Ave., Thomasville 27360

Larry Brant King (PA), ECU School of Medicine, Dept. of Surgery, Greenville 27858

Lemuel Broome Kirby (RESIDENT), 47 Davie Circle, Chapel Hill 27514

Jodie Kathleen Labowitz, 905 A5 Park Ridge Road, Durham 27713

Steven Jay Landau (RESIDENT), 101-A Quail Lakes Drive, Winston-Salem 27104

Kenneth Amos Lee (RESIDENT), 4238 Ferncreek Drive, Fayetteville 28314

Thomas Fowler Lindsay (FP), Bldg. #1, Medical Park Drive, Brevard Family Practice, Brevard 28712

Sherrill Todd Little (RESIDENT), 2725 Bexley Drive, Durham 27707

Michael Antonio Maldonado (RESIDENT), 218 Conner Drive, #18, Chapel Hill 26514

Gail Marion (PC), Bowman Gray School of Medicine, Medical Center Blvd., Winston-Salem 27157

Thomas Jude Montine (RESIDENT), Box 3712 DUMC, Durham 27710

Leslie Anne O'Meara (RESIDENT), 111 Tall Oaks Road, Chapel Hill 27516

Melanie Markham Orange (RESIDENT), 118 W.T. Weaver Blvd., Asheville 28804

Robert Allen Peterson (RESIDENT), 404 Jones Ferry Road, Apt. A10, Carrboro 27510

Hemant Prakash (PD), 990 Lee Ann Drive, Concord 28025

Scott Allen Raber (RESIDENT), 114 Ten Tall Trail, New Bern 28560

Phillip Anthony Rinaldi (AN), UNC Hospitals, Anesthesia Dept., Chapel Hill 27599

Daniel Morgan Roberts (RESIDENT), 933 Sedgfield Road, Charlotte 28209

Deirdre Robinson (OBG), Bowman Gray Dept. of Ob/Gyn, Medical Center Blvd., Winston-Salem 27157

Mark Wade Scroggs (RESIDENT), 1507 Hermitage Court, Durham 27707

Lori Jean Seymour (PC), 105 Brackenberry Circle, Mt. Pleasant 28124

Alex Jason Smith (RESIDENT), 391-B Glendare St., Winston-Salem 27104

Tammy Rose Spear (RESIDENT), 1507 Scalesville Road, Summerfield 27358

Herbert Joel Stern (PDC), 1001 Blythe Blvd., Ste. 300, Charlotte 28203

Lloyd Jeffrey Taylor (PA), 516 Mocksville Ave., Salisbury 28144

Kevin Daniel Thomas, 30 Forest Glen, Chapel Hill 27514

John Michael Trummel (RESIDENT), 1403-A E. 2nd St., Greenville 27858

James Grant Warner, Jr. (RESIDENT), 4335 Yadkinville Road, Winston-Salem 27106

Christopher Carr Way (OPH), 3312 Battleground Ave., Greensboro 27410

Bruce Stuart Webster (EM), 135 Gossett Court, Mooresville 28115

William Alan White (PC), Dupont/Cape Fear Site, Box 2042, Wilmington 28402

Kathryn Everhart Wiethe (PA), 302-C Village Drive, Sanford 27330

Bertie-Gates-Hertford

Jude Thomas Smith (ORS), 602 S. Academy St., Ahoskie 27910

Buncombe

Ellen Tuch Lawson (EM), 109 Kimberly Knoll Road, Asheville 28804

Cabarrus

Thomas Albert Steffens (IM), 390 Copperfield Blvd., Concord 28025

Joseph Conrad Stegman (PD), 990 Lee Ann Drive, Concord 28025

Caldwell

Ronald Edward Trescot (OBG), P.O. Box 2640, Lenoir 28645

Catawba

Charles Steven Kiell (GS), 415 N. Center St., Ste. 102, Hickory 28601

Columbus

Douglas George Burnette, Jr. (DR), 500 Jefferson St., Whiteville 28472

Craven-Pamlico-Jones

Lisa Ehrhardt Banker (IM), 2005 Hydes Corner, New Bern 28560

Millard Fillmore Banker, IV (FP), P.O. Box 68,

Pollocksville 28573
Luther Haywood Eure, Jr. (OBG), 750 McCarthy Blvd., New Bern 28560

Cumberland

Paul Evan Casinelli (AN), 4215 Ferncreek Drive, Fayetteville 28314
Donald William Farmer (R), 1329 Robeson St., Fayetteville 28305
Stephen Mitchell Herring (PS), 1314 Medical Drive, Ste. 103, Fayetteville 28304
Nancy Henderson Hines (RESIDENT), 3472 McChoen Drive, Fayetteville 28301
William Wayne Lowe (NPM), 3328 Jura Drive, Fayetteville 28303

Durham-Orange

Robert Rand Allingham (OPH), Box 3802 DUMC, Durham 27710
Lela Warren Brink (PD), 317 1/2 W. University Drive, Chapel Hill 27516
Jason Russell Burke (STUDENT), 312-A McCauley St., Chapel Hill 27516
Patricia Ellen Clark (RESIDENT), 89 Oak Leaf Lane, Chapel Hill 27516
Samir Majid Fakhry (GS), UNC, CB 7210, Dept. of Surgery, 215 Burnett-Womack, Chapel Hill 27599
Steven A. Feingold (STUDENT), 4419-B American Drive, Durham 27705
Christine Maria Gasperetti, 38 Forest Glen, Chapel Hill 27514
David Newcomb Thies (RESIDENT), 109 Hanna St., Carrboro 27510
Debara Lyn Tucci (OTO), Box 3805 DUMC, Div. Otolaryngology, Durham 27710

Forsyth-Stokes-Davie

Carl Michael Beavers (FP), 814 West End Blvd., Winston-Salem 27101
Jason Robert Connelly (STUDENT), 1933 Hinshaw Ave., Winston-Salem 27104
Stephen David Craig (RESIDENT), 987 Ridgeview Ave., Winston-Salem 27127
Richard Marc Davis (OPH), Bowman Gray School of Medicine, Medical Center Blvd., Winston-Salem 27157
Carl William Ehmann (D), R.J. Reynolds Co., Bowman Gray Tech. Ctr., Winston-Salem 27102
Paul Gray Martin (N), P.O. Box 25505, 3314 Healy Drive, Ste. 105, Winston-Salem 27114
Christopher Michael McManus (RESIDENT), 1624 Quillmark Road, Winston-Salem 27127
Pamela Rose Roberts (CCM), Bowman Gray, Dept. of Anesthesiology, Medical Center Blvd., Winston-Salem 27157
Quang Thanh Tran (HNS), 1420 Plaza Drive, Forsyth Head/Neck Associates, Winston-Salem 27103

Greater Greensboro Society of Medicine

Jeffrey Carlton Beane (ORS), 1401 Benjamin Parkway, Greensboro 27408

Eric Charles Fee (FP), 5815 High Point Road, Greensboro 27407
Samuel Scott Knisely (N), 1910 N. Church St., Greensboro 27405
Rita Torres Layson (IM), Moses Cone Hospital, 1200 N. Elm St., Greensboro 27401
William Earl Marks, Jr. (AN), 1211 Virginia St., Greensboro 27401
Edgar Strock Moser, Jr. (R), P.O. Box 29327, Greensboro 27429

Halifax-Northampton

Ramamohana Prasad Degala (P), 1048 E. 10th St., Roanoke Rapids 27870
Willie James Hilliard (OBG), 525 Becker Drive, Roanoke Rapids 27870

Henderson

Thomas L. Eisenhower (GS), 561 Fleming St., Hendersonville 28739
Angus Woodward Graham, III (ORS), 20 Hospital Drive, Brevard 28712
Beth Marrene Hays (RO), 200 Doctors Bldg., Asheville 28801

Iredell

Stephen Parker Rosser (GS), 750-E Hartness Road, Statesville 28677

Lenoir-Greene

Kenneth Sherman Wurtz (IM), Kinston Clinic North, Ste. N, Kinston 28501

Mecklenburg

David Michael Berenbeim (IM), 3818 Moorland Drive, Charlotte 28211
Daniel Joseph Bernstein (OM), 6000 Alexa Road, Charlotte 28277
John Redmond Blumer (OTO), 1350 S. Kings Drive, Charlotte 28207
Charles Joseph Breen (OPH), 1626 Scotland Ave., Charlotte 28207
Martin Alan Burns (R), 2026 Beverly Drive, Charlotte 28207
Evelyn L. Hall-Baker (FP), 2211-II Executive St., Charlotte 28208
Sandra Ellen Hardee (RESIDENT), 4821 Water Oak Road, #8, Charlotte 28211
William Allen Killinger, Jr. (GS), 1001 Blythe Blvd. #300, N/R-6-25-87, Charlotte 28203
Thomas Hogemen Phillips (U), 1333 Romany Road, Charlotte 28204
Joanne Louise Pizzino (FP), 1350 S. Kings Drive, Charlotte 28207
Irene Ann Saikewych (PTH), Presbyterian Hospital—Pathology, 200 Hawthorne Lane, Charlotte 28233
Henry F. Tripp, Jr. (RESIDENT), Carolinas Heart Institute, 1000 Blythe Blvd., Charlotte 28232
Tom Harlan Wallach (P), 212 N. McDowell St., #110, Charlotte 28204
Mark Alan Williams (PD), 1718 E. 4th St., Ste. 805, Charlotte 28207

Edwin Samuels Young, Jr. (PD), P.O. Box 32861, Charlotte 28232

Frank Alfred Young (GS), 7501 Watercrest Road, Charlotte 28210

Mitchell-Yancey

Russell Austin Flint (ORS), 125 Hospital Drive, Spruce Pine 28777

Nash

Robert B. Whitmore, III (U), 180 Foy Drive, Rocky Mount 27804

Onslow

Kenneth Michael Lury (DR), 105 Grimsby Place, Jacksonville 28540
John Andrew Westbrook (GS), 200 Doctors Drive, Ste. L, Jacksonville 28546

Pitt

Raymond Anthony Dombroski (OBG), ECU School of Medicine, Dept. of Ob-Gyn, Greenville 27858
Brian Patrick Magrane (RESIDENT), ECU, Dept. of Family Medicine, Greenville 27858
Robert Lewis Wortmann (RHU), ECU School of Medicine, Dept. of Medicine, Greenville 27858

Rockingham

Edward Sanford Purvis, II (GS), 515 Thompson St., Ste. B, Eden 27288

Rowan

Lloyd Emery Nickerson (FP), 516 Mocksville Ave., Salisbury 28144

Scotland

Paul Edward Bjork, Jr. (OBG), 8200 Glasgow Drive, Laurinburg 28352

Surry-Yadkin

Tomas Vybiral (IM), Parkwood Drive, Elkin 28621

Wake

Walter L. Chmielewski (RIIU), 3831 Merton Drive, Raleigh 27609
Dennis Neill Jakocos (FP), 3100 Blue Ridge Road, Ste. 202, Raleigh 27612
Tara Elizabeth Pressley (P), 3108-E Essex Circle, Raleigh 27608
A. Silvia Ross (RHU), 3831 Merton Drive, Raleigh 27609
Nancy Marie Sokany (IM), 3320 Wake Forest Road, Raleigh 27609

Wayne

Carey M. Ziemer, 2706 Medical Office Place, Goldsboro 27534

Wilkes

David Daesung Kim (GS), 233 Jefferson St., North Wilkesboro 28697



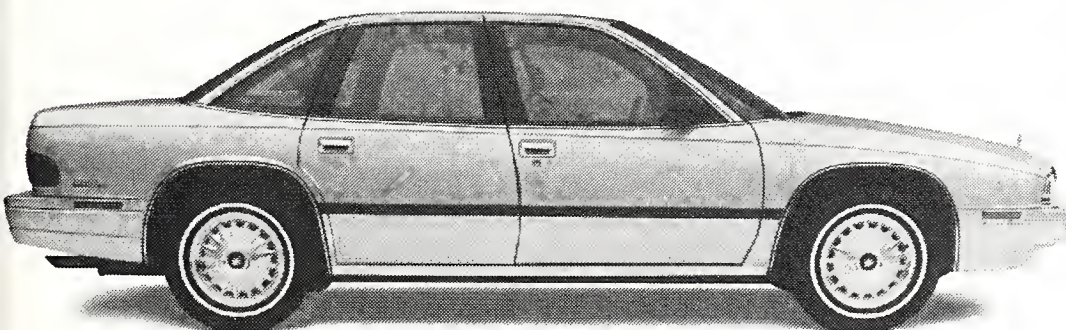
Let Alamo Treat You With 2 Great Deals.

The diagnosis for Association members looks great! Now you can enjoy \$15 OFF ANY WEEKLY RENTAL OR A FREE UPGRADE with Alamo's Association Program. And as always, you get *unlimited free mileage* on every rental in the U.S., U.K. and now Switzerland. In addition, you'll receive frequent flyer miles with Alaska, Delta, Hawaiian, United and USAir. Alamo features a fine fleet of General Motors cars and all locations are company-owned and operated nationwide to ensure a uniform standard of quality.

As a member, you'll receive other valuable coupons throughout the year that will save you money on each rental. So let Alamo treat you with 2 great deals. For member reservations call your Professional Travel Agent or Alamo's Membership line at **1-800-354-2322**. Use **Rate Code BY** and **ID# 213386** when making reservations.



Where all the miles
are free®



Alamo features fine General Motors cars like this Buick Regal.

\$15 OFF

- Valid for \$15 off a weekly rental (minimum 5 days, maximum 28 days) on an intermediate through luxury car category. The maximum value of this certificate which may be applied toward the base rate of one rental is \$15 off. The base rate does not include taxes and other optional items. No refund will be given on any unused portion of certificate. Certificate is not redeemable for cash.
- Certificate valid at locations in the U.S.A. only. Once redeemed, certificate is void. Must be presented at the Alamo counter on arrival.
- One certificate per rental, not valid with any other certificates/offers.
- This certificate and the car rental pursuant to it are subject to Alamo's conditions at the time of rental.
- This certificate is null and void if altered, revised or duplicated in any way.
- A 24-hour advance reservation is required.
- Offer valid 09/01/93 through 05/25/94 except: 11/24/93-11/27/93, 12/16/93-01/01/94, 02/10/94-02/12/94 and 03/31/94-04/02/94.

For reservations call your Professional Travel Agent or call Alamo's Membership Line at **1-800-354-2322**. Request **Rate Code BY** and **I.D. # 213386 RATE CODE BY** when making reservations.



Where all the miles
are free®

D22B

ONE FREE UPGRADE

- Valid for one free upgrade to next car category. Valid from a compact car and above, luxury and specialty cars excluded. Upgrade subject to availability at time of rental, as certain car types may not be available. Valid on rentals up to seven days. Certificate does not include taxes and other optional items.
- Certificate valid at locations in the U.S.A. only. Once redeemed, certificate is void. Must be presented at the Alamo counter on arrival.
- One certificate per rental, not valid with any other certificates/offers.
- This certificate and the car rental pursuant to it are subject to Alamo's conditions at the time of rental.
- This certificate is null and void if altered, revised or duplicated in any way.
- A 24-hour advance reservation is required.
- Offer valid 09/01/93 through 05/25/94 except: 11/24/93-11/27/93, 12/16/93-01/01/94, 02/10/94-02/12/94 and 03/31/94-04/02/94.

For reservations call your Professional Travel Agent or call Alamo's Membership Line at **1-800-354-2322**. Request **Rate Code BY** and **I.D. # 213386** when making reservations.



Where all the miles
are free®

U89B

North Carolina Medical Journal

Volume 54, January 1993 - December 1993

Where to locate Journal articles:

January	pages 1-52	July	pages 301-360
February	pages 53-124 (special issue: Arts Medicine)	August	pages 361-428 (special issue: Ethics in Medicine)
March	Roster edition (annual membership directory)	September	pages 429-488
April	pages 125-184	October	pages 489-560 (special issue: Rural Health in NC)
May	pages 185-244	November	pages 561-612
June	pages 245-300	December	pages 613-672

Author Index

- Alexander, Eben Jr**, The threat to the medical profession in its attempt to discipline itself 170
- Book review**: Sand in the gears: how we won WWII in spite of ourselves, Magnolia Marketing and Publishing Co. 237
- Manson Meads, M.D.**: a remarkable administrator for Bowman Gray and beyond 268
- Anscher, Mitchell S**, Screening for prostate cancer utilizing the prostate-specific antigen (PSA) 443
- Baker, John W**, The cost of violence: the economy of health care delivery for non-accidental trauma in an urban southeastern community 578
- Batson, Glenna**, The role of somatic education in dance medicine and rehabilitation 74
- Bellamy, Martha A**, Music therapy in medical settings 91
- Bernhardt, Judy**, Agricultural hazards in North Carolina 512
- Berry, Courtland J**, Ode to the carotids (poem) 654
- Bertrand, Margaret L**, Breast cancer: early detection may mean cure 25
- Mammoscram revisited**: North Carolina physicians respond 194
- Bhat, Raja**, Words to regret (poem) 222
- Blackwell, Susan**, Lung cancer in North Carolina 334
- Brady, Walter M**, The way it was: a Carteret County physician recounts the beginnings of his practice 40 years ago 38
- Brunetti, Louis L**, Physician-assisted suicide and advance directives concerning life support 312
- Bullitt, James B**, More sand in the other gears: three physicians recount their wartime experiences 284
- Bumgarner, John R**, Phthisis: my case history—surviving a 15-year odyssey as POW and patient 288
- Carreras, Jorge**, Physicians with good communication skills are made, not born 652
- Chitwood, W Randolph Jr**, The good physician: what should we be Sir William? 191
- Churchill, Larry R**, Medical ethics: teaching and practice (issue guest editor) 367
- The medical ethics teaching program at UNC-Chapel Hill 405
- Clancio, Jack**, Advance directives and do not resuscitate orders at Bowman Gray-Baptist Hospital Medical Center 373
- Cline, David M**, Patient perceptions of medical urgency at the time of discharge from the emergency department 157
- Cole, Thomas B**, An injury control strategy for rural North Carolina 508
- Cooper, M Robert**, Prostate cancer 87
- Cordasco, Carolyn F**, Addictions: sex addiction 457
- Crawford, Jeffrey**, Lung cancer in North Carolina 334
- Curtis, Peter**, The return of the generalist physician: initiatives of the University of North Carolina School of Medicine 469
- Davis, James E**, Durham, city of medicine, USA: part 1—the genesis 227
- Durham, city of medicine, USA: part 2—the first decade 262
- Durham, city of medicine, USA: part 3—the city of medicine awards program and the future 346
- Davis, Trenton G**, Environmental conditions in rural North Carolina 543
- Derthick, Steve**, Extending and enhancing health care through the North Carolina Cooperative Extension Service 501
- Diosegy, Arlene J**, What physicians need to know about OSHA: how to avoid tough new penalties 251
- Dirkers, Jerry**, How many people need substance abuse treatment in North Carolina and how much does it cost? 209
- Easley, H Alexander III**, Doctors, lawyers, and personal injury: separating myth from fact 352
- Edwards, Paul**, AIDS cholangiopathy as the first sign of HIV infection 16
- Ellenbogen, Charles**, The road to hell: new rules to “protect” patients from being infected with HIV by their doctors 6

Tuberculosis in the AIDS era	9	ting people first: how we can all change America, Times Books	43	problems and issues in rural areas: with help from primary care physicians	547
Eslinhardt, James D , AIDS in rural North Carolina	517	<i>Book reviews: Successful faculty in academic medicine: essential skills and how to acquire them</i> , Springer Publishing Co.; The academic dean: dove, dragon, and diplomat, American Council on Education/Macmillan Publishing Co.; Genes and the biology of cancer, Scientific American Library	237	James, Richard T Jr , Abstracting journal articles: a personal experience	323
Estes, E Harvey Jr , Branch retinal artery occlusion: a possible adverse effect of chelation therapy	172	Physician-assisted suicide and advance directives concerning life support (editor)	312	Jarrahl, Shiva , State of affairs: the U.S.-Iran medical exchange program: then and now	575
A report from the community practitioner program	496	Screening for prostate cancer utilizing the prostate-specific antigen (PSA) (editor)	443	Jones, James G , Caring for people in eastern North Carolina	505
Feussner, John R , Screening for asymptomatic diseases in your patients: practical tips for doing it right	218	Handshoe, David , Cat germs! pleuropulmonary pasteurella infection in an old man	308	Keleman, Mark , Cat germs! pleuropulmonary pasteurella infection in an old man	308
Screening mammography for breast cancer: a wise test when used in time	257	Hardaker, William T Jr , Dance medicine: an orthopaedist's view	67	Kelley, Heidi , The reinvention of traditional medicine in western North Carolina	550
Screening for cervical cancer: Pap smears can save lives	342	Harker, Margaret N , Doctors, lawyers, and personal injury: separating myth from fact	352	Kenan, Patrick D , Arts medicine (issue guest editor)	59
Screening for ovarian cancer: not worthwhile for most patients	438	Holiday footnote	654	King, Charles , Cultural literacy of professional students	415
Screening for prostate cancer: does it make a difference?	568	Harper, Margaret A , Maternal mortality in North Carolina	584	King, Nancy M P , Medical ethics: teaching and practice (issue guest editor)	367
Screening for colon cancer: is it worth the expense?	634	Hayes, Annie L , Breast cancer: early detection may mean cure	25	Patient waiver of informed consent	399
Fraser, Robert W , Screening for prostate cancer utilizing the prostate-specific antigen (PSA)	443	Hazzard, William R , Irony upon irony: internal medicine at the crossroads of the crisis in medicine and health care (and what we are trying to do about it at Bowman Gray)	161	Kirk, William S , Chronic temporomandibular joint disease and head pain	30
Futrell, Debra P , Drug compliance: are you getting the most out of your medicine?	523	Hendrix, Barbara M , Physician-assisted suicide and advance directives concerning life support	312	Kissling, Grace , How many people need substance abuse treatment in North Carolina and how much does it cost?	209
Gamble, John R , Running the race: two physicians reflect on their political experiences	175	Herman, Dale , Lung cancer in North Carolina	334	Kopelman, Loretta M , The medical humanities program at East Carolina University	409
Garland, Barbara , Extending and enhancing health care through the North Carolina Cooperative Extension Service	501	Hinds, Ann , Physician assistants in North Carolina, 1992	276	Kopita, Jeffrey M , Cat germs! pleuropulmonary pasteurella infection in an old man	308
Gauthier, Candace C , Physician-assisted suicide and advance directives concerning life support	312	Hodges, Kathy , Domestic violence: a health crisis	213	Koufman, James A , Medicine in the vocal arts	79
Glasson, John , More sand in the other gears: three physicians recount their wartime experiences	284	Hollenbeck, John I , The cost of violence: the economy of health care delivery for non-accidental trauma in an urban southeastern community	578	Kramer, Stephen I , The role of the arts in physician stress management	110
Conflicts of interest in physician ownership of medical facilities: a clarification of present AMA and North Carolina Medical Society policy	455	Hover, Margot , The ministry of caring, part 2	41	Kussin, Peter S , Cat germs! pleuropulmonary pasteurella infection in an old man	308
Gockerman, Jon P , Physician-assisted suicide and advance directives concerning life support	312	part 3	105	Langley, Ricky L , Rural health in North Carolina (issue guest editor)	494
Goldner, J Leonard , Thoughts on reading "Is there a right to health care?": a response to Professor Tong's article	596	Hughes, Doreen L , The role of the arts in physician stress management	110	Agricultural hazards in North Carolina	512
Graham, Gloria F , Skin cancer	153	Hurwitz, Barrie J , Tardive dyskinesia and pseudo-Parkinsonism in a nursing home patient who itched	605	Lee, John G , AIDS cholangiopathy as the first sign of HIV infection	16
Graham, John B , More sand in the other gears: three physicians recount their wartime experiences	284	Iarovici, Doris M , <i>Mediphors</i> : a new literary journal for the health sciences	326	Lengerich, Eugene J , Reducing the burden of chronic disease in rural North Carolina	532
Grech, Paul , AIDS cholangiopathy as the first sign of HIV infection	16	James, J Frank , Confronting psychiatric		Levine, Ronald H , Conjoint report: to the North Carolina Medical Society and the North Carolina Commission for Health Services	140
Greene, Dennis A , Gold, frankincense, myrrh, and medicine	620			Linfors, Eugene W , Physicians' forum: to encourage or not to encourage our children to study medicine (editor)	479
Halperin, Edward C , <i>Book reviews: Put-</i>				Lischer, Tracey Kenyon , Doctors, lawyers, and personal injury: separating myth	

668 NCMJ / December 1993, Volume 54 Number 12

Is there a <i>right</i> to health care?	590	cancer utilizing the prostate-specific anti- gen (PSA)	443	Screening mammography for breast can- cer: a wise test when used in time	257
Vance, Richard P, Physician-assisted sui- cide and advance directives concerning life support	312	Weaver, James P, Our country's mania for medical care is separating us from our constitutional heritage	463	Screening for cervical cancer: Pap smears can save lives	342
Advance directives and do not resuscitate orders at Bowman Gray-Baptist Hospital Medical Center	373	Weber, David J, Infections acquired in the great out-of-doors of North Carolina	537	Screening for ovarian cancer: not worth- while for most patients	438
Cultural literacy of professional students	415	Weedy, Chris, Psychosocial issues in pe- diatric AIDS	18	Screening for prostate cancer: does it make a difference?	568
Vander Woude, Lynn M, Dance medi- cine: an orthopaedist's view	67	Weiner, Tim, Lessons from an inconve- nient patient	573	The psoas signs: well-described but often forgotten physical examination findings of iliopsoas inflammation	598
Velez, Ramon, Irony upon irony: internal medicine at the crossroads of the crisis in medicine and health care (and what we are trying to do about it at Bowman Gray)	161	Welton, David G, When "my heart stood still"	525	Screening for colon cancer: is it worth the expense?	634
Walker, L G, The cost of violence: the economy of health care delivery for non- accidental trauma in an urban southeast- ern community	578	West, Eddle, Advance directives and do not resuscitate orders at Bowman Gray- Baptist Hospital Medical Center	373	Yarborough, Michael F, Breast cancer malpractice litigation in North Carolina, 1984-1992	202
Walther, Philip J, Screening for prostate		Wilson, Joanne A P, AIDS cholangiopathy as the first sign of HIV infection	16	VonSeggen, Wayne, Physician assistants in North Carolina, 1992	276
		Wong, Jeffrey G, Screening for asymp- tomatic diseases in your patients: practi- cal tips for doing it right	218	Zwerling, Charles S, Branch retinal artery occlusion: a possible adverse effect of chelation therapy	172

Subject Index

Abstracts, of journal articles	323	role of in physician stress management	110	Chronic disease, in rural NC	532
Addictions		Board of Medical Examiners, in NC	625	City of Medicine program, part 1	227
drug abuse	393	Bowman Gray School of Medicine		part 2	262
sex	457	state of internal medicine program	161	part 3	346
Advance directives		Manson Meads, M.D., administrator	268	Clozapine, overdose	602
and physician-assisted suicide	312	Breast cancer		Colon cancer, screening for	634
new options for in NC	369	early detection	25, 194	Community practitioner program, re- port from	496
and do not resuscitate orders at Bowman Gray-Baptist Hospital Medical Center	373	malpractice litigation in NC (1984-1992)	202	Coronary artery disease, and arterioscle- rosis of the lower extremities	659
Agricultural hazards	512	screening mammography	257	Country doctor of the year, nominees for award	226, 299
AIDS		Cancer		Dance medicine	67
NC law	6	breast	25, 194, 202	Domestic violence	213, 271
and tuberculosis	9	cervical	342	Diseases, (also see: Screening), tips for screening	218
AIDS cholangiopathy	16	lung	334	Drugs	
pediatric, psychosocial issues	18	skin	153	abuse	393
in rural NC	517	prostate	87, 443, 568	compliance	523
Arteriosclerosis, of the lower extremities and coronary artery disease	659	awareness	585	Durham, city of medicine program	
Arts (special issue, February)		colon	634	part 1	227
medicine	59	Caregiving, ministry of	41, 105	part 2	262
and dance	67, 74	Carteret County, history of medicine in	38	part 3	346
and vocal arts	79	Cervical cancer, screening for	342	Eastern North Carolina, caring for people in	505
and music therapy	91	Chelation therapy, retinal artery occlu- sion as possible adverse effect	172	Elderly	
and literature	96	Child abuse	329	care of without using restraints	145
and environmental design	101			abuse of	271
and drama	106				
and visual arts	115				

Emergency medicine, patient perceptions at discharge	157	ethics teaching program at UNC-CH	405	Practical Pointers , abstracting journal articles	323
cost of non-accidental trauma in urban southeastern community	578	medical humanities program at ECU	409	President's message	136
Environment		cultural literacy of professional students at Wake Forest	415	Prostate cancer	87, 443, 568
design of health care facilities	101	initiatives of UNC School of Medicine	469	Psychiatry	
conditions in rural NC	543	account of a minority student at Meharry Medical College	476	in central Europe	292
Ethics, medical (special issue: August)		lessons from an inconvenient patient	573	problems in rural areas	547
teaching and practice	367	U.S.-Iran medical exchange program	575	Pulmonary surfactant , historical perspective	447
beyond the no-code order	383	Dr. Stead's Lecocq Lecture	645	RBRVS , in private practice medical community	235
an exercise in futility	386	<i>Mediphors</i> , literary journal	326	Residents , legal responsibilities of those supervising care by	166
Ethics, in education		Mortality		Restraints , caring for the elderly without them	145
teaching program at UNC-CH	405	infant in rural NC	528	Retinal artery occlusion	172
medical humanities program at ECU	409	maternal in NC	584	Roundup® , poisoning	35
cultural literacy of professional students	415	Mother's Day	207	Rural health (special issue, October)	
Families, and physicians	659	Military medicine , WWI and WWII memoirs	284, 288	in North Carolina	494
Family violence , child abuse	329	Music therapy , in medical settings	91	primary care	496, 501, 505
Folk medicine , in western NC	550	Myrrh , and medicine	620	and injury control	508
Franklin , and medicine	620	North Carolina Board of Medical Examiners	625	agricultural hazards	512
Gamma-hydroxybutyrate , poisoning	232	North Carolina Cooperative Extension Service	501	and AIDS	517
		North Carolina Medical Society		and infant mortality	528
Glyphosphate , poisoning	35	President's message	136	and chronic disease	532
Gold , and medicine	620	Report to NCMS from State Health Director	140	and infections acquired outdoors	537
Graham, John B. , memoirs of military medicine	284	Obstetrics , maternal mortality in NC	584	environmental conditions	543
Health care reform , debate	463, 466, 590, 596, 616	OSHA , how to avoid new penalties	251	and psychiatric problems	547
Heart attack , first-person account	525	Osler , William, humanism in medicine	191	folk medicine	550
Heart disease , see coronary artery disease		Ovarian cancer , screening for	438	Sex addiction	457
HIV , see AIDS		Pap smears , screening for cervical cancer	342	Scombroid ichthyotoxicosis	452
Hospice care	641	Personal injury , doctors, lawyers and, separating myth and fact	352	Screening for disease	218
Illopoas , inflammation	598	Phthlsis , first-person case history	288	for breast cancer	257
Humanism , in medicine	191	Physician assistants , survey in NC	276	for cervical cancer	342
Infant mortality , in rural NC	528	Physician-assisted suicide	312, 378	for ovarian cancer	438
Infection control	537	"Physicians' forum," whether or not to encourage our children to study medicine	479	for prostate cancer	443, 568
Informed consent , patient waiver	399			for colon cancer	634
Injury control , for rural NC	508	Physician ownership of medical facilities , AMA and NCMS policy review	455	Shaffner, Louis deS. , <i>Journal</i> honors	280
Internal medicine , state of at Bowman Gray	161	Physician-patient , communication skills	652	Skin cancer	153
Lateral lumbar disc , herniation	224	Pleuropulmonary pasteurella infection	308	Somatic education , in dance medicine and rehabilitation	74
Lawyers , doctors and personal injury	352	Politics , two physicians who ran for office		State Health Director , annual report	140
Lung cancer , in North Carolina	334			Stress , physician management of	110
Malpractice litigation , for breast cancer in NC (1984-1992)	202			Styron, Charles W. , in honor of	640
Mammography	194, 257			Substance abuse in NC	209
Meads, Manson , Bowman Gray School of Medicine administrator	268			Suicide , physician-assisted	312
Medical ethics , see Ethics				Tardive dyskinesia , and pseudo-Parkinsonism in a nursing home patient	605
Medical examiners , NC Board	625			TMJ , chronic disease and head pain	30
Medical practice , opinion program, in Calif.	170			Trauma , cost of care in urban southeastern community	578
Medical education				Tuberculosis , and AIDS	9
Duke's standardized patient program	106			in World War I	288
				UNC School of Medicine	469
				Visual arts	115

Classified Advertisements

Call the Journal at 919/286-6412 for Classified rate information and deadlines.

CARDIOLOGIST BC/BE: to join invasive and non-invasive two-physician cardiology group in the growing Research Triangle area of NC. All benefits. Submit CV to Cary Cardiology, P.A., 200 Keisler Drive, Suite B, Cary, NC 27511.

CAROLINA!: Have you ever considered moving to beautiful Charlotte, North Carolina? Our practice is growing, dynamic, and focused on developing programs to meet the medical needs of the 90s. Our practice emphasizes general neurology, inpatient general medical rehabilitation and neurorehabilitation, and comprehensive pain management. We are in need of an energetic, motivated, and creative neurologist who enjoys hard work, feels compassion for his or her patients, and always strives to maintain the highest level of professional service. Send your CV to Ronald C. Demas, M.D., 2219 E. 7th St., Charlotte, NC 28204. We look forward to hearing from you.

CHARLOTTE, NC: Outstanding opportunity now available for board-certified internist to serve as Assistant Director of Medical Clinic at Carolinas Medical Center, an 843-bed Level I trauma center. The Medical Center is one of five academic teaching centers in NC. Responsibilities include administration, resident supervision, and clinical research. Please send CV to: Mary Baucom, M.D., Department of Medicine, Carolinas Medical Center, P.O. Box 32861, Charlotte, NC 28232.

EMERGENCY MEDICINE—THE CAROLINAS: Positions are available for ED medical directors and full-time staff physicians at several clients in North Carolina and South Carolina. Opportunities in North Carolina include two affiliated hospitals with

annual ED volumes of 23,000 and 21,000 in Burlington; Hamlet, located one hour from Charlotte and an hour and a half to the ocean; Louisburg, located only 35 minutes from Raleigh; and Mooresville, located near Lake Norman and 30 minutes from Charlotte. Lancaster, South Carolina, with an annual ED volume of 23,000, is located a half hour from Charlotte. Spectrum offers independent contract physicians a competitive hourly rate and participation in our occurrence-based malpractice insurance program. Directors also receive health benefits, administrative stipend, and participation in a retirement plan after 12 months. Contact Joyce Solomon, Spectrum Emergency Care, 800/325-3982, ext. 3011.

JAMESTOWN: Busy ambulatory care centers here and in Danville, VA, seek BC/BE family or emergency medicine practitioners. Excellent salary/benefits package. Send CV: Dr. William Ameen, P.O. Box 1176, Jamestown, NC 27282.

PHYSICIAN ASSISTANT—INTERNAL MEDICINE & FAMILY PRACTICE: to join two-physician rural health clinic in Bertie County in Windsor, NC. You will have independent practice office/nursing home/emergency department of local hospital with physician supervision and working with two other PA-Cs. Beginning salary \$65,000 + benefits. Contact L. E. Reaves, III, M.D., of Bertie Medical Center, 601 Sterlingworth St., Windsor, NC 27983. Tel. 919/794-3317.

POSITIONS AVAILABLE—NASHVILLE, TENNESSEE: Two full-time BE/BC physicians are needed to staff one of Baptist Convenient Care's five

urgent care centers. Schedules will be arranged in 13-hour shifts with a minimum of 40 hours per week. We offer a competitive salary and benefits package that includes \$70 an hour, two weeks paid vacation, 40 hours paid CME, malpractice coverage 2m/4m, health insurance, and profit sharing. For more information, contact Sylvia Parker, Vice President of Operations, or Robert Hutton, M.D., FACEP, Medical Director, at 2601P Elm Hill Pike, Nashville, TN 37214, or call 615/883-7790.

PRIMARY CARE PHYSICIAN: free-standing clinic—Urgent Care/Occupational Medicine: Immediate opening in the Piedmont area of North Carolina for aggressive primary care physician interested in long-term career commitment. Excellent salary, fringes, plus a progressive profit-sharing plan. Call or send CV to Dr. Jeffrey A. Smith, 613 E. Roosevelt Blvd., Monroe, NC 28112. Phone 704/283-8193.

RALEIGH, NC: Practice opportunity. Join three-pediatrician group in educational, cultural city. Teaching opportunities, consultations at nearby medical centers. Inquire Oberlin Road Pediatrics, 1321 Oberlin Road, Raleigh, NC 27608, or call Mary Anne Clark at 919/828-4747.

RESEARCH TRIANGLE PARK: private Occupational Medicine/Family Medicine practice requires full-time, mature, board-certified or -eligible physician. Surgical and orthopedic skills required; occupational medicine experience preferred. Open 8 a.m. to 6 p.m. weekdays, excluding holidays; outpatient practice only. For more information, call Carol Kunkel, 800/633-5467.

Aphorisms of the Month

Daniel J. Sexton, M.D., Editor

Medical Miscellany

Most people have a furious itch to talk about themselves and are restrained only by the disinclination of others to listen. Reserve is an artificial quality that is developed in most of us as the result of innumerable rebuffs. The doctor is discreet. It is his business to listen and no details are too intimate for his ears.

—W. Somerset Maugham, *"The Summing Up"*

The road to medical knowledge is through the pathological museum, and not through an apothecary's shop.

—Sir William Gull

Caution and fear are different things: Where any good can be done, it ought to be attempted by every practical and justifiable means; but when no good is reasonably to be expected, there is no warrant for doing anything.

—Percivall Pott, *"Injuries of the Head," 1775*

There is no finer investment for any community than putting milk into babies.

—Winston Churchill

To be sick is to enjoy monarchical prerogatives.

—Charles Lamb

Put your toe in a vice and turn the handle as tight as possible; that is the pain of rheumatism. Give the handle one full turn more: that is the agony of gout.

—Anonymous

Oh! when I have the gout, I feel as if I was walking on my eyeballs.

—Sydney Smith

There are two kinds of deafness. One is due to wax and is curable; the other is not due to wax and is not curable.

—Sir William Wilde (*ENT surgeon, father of Oscar*)

Index to Advertisers

Accuscribe	656
Auto Brokers, International	661
Baron Benefits	657
CNA Insurance Co.	615
CompHealth	661
CompuSystems, Inc.	Back cover
Deweese Island, SC	619
Glaxo Pharmaceuticals	Inside front cover
Interim HealthCare	639
Jeremy Cay, SC	Inside back cover
Medical Billing Practice, Inc.	623
Medical Mutual Insurance Co.	633
Medical Protective Co.	617
Palisades Pharmaceuticals	640
Prospectus Computer Co.	656
U.S. Air Force	613
U.S. Air Force Reserve	662
U.S. Army	622
U.S. Army Reserve	657
Winchester Surgical Supply	654
Womble Carlyle Sandridge & Rice	661

Correction

In the article "Maternal Mortality in North Carolina," (NC Med J 1993;54:584) the *Journal* inadvertently identified author Margaret A. Harper, M.D., FACOG, as chair of the North Carolina Medical Society's Committee on Maternal Health. John H. Tinga, M.D., chairs the committee. Dr. Harper and Committee member Paul J. Meis, M.D., both of Bowman Gray, are in charge of evaluating maternal mortality and statistics for the State Department of Health Statistics.

Oceanfront Living Like Nowhere Else in the World.



*I*n a lush and beautiful area just south of Charleston lies a private island called Jeremy Cay...it is a place of history and Southern folklore, where dirt roads wind lazily among live oaks, palmettos, and tidal lagoons, past some of the most majestic scenery in the Southeast.

To say that Jeremy Cay offers "oceanfront living like nowhere else" is certainly no overstatement; it is naturally secluded from the rest of the world, yet only minutes from restaurants, tennis, and golf. It is a place for families to



gather - and enjoy together the creeks, marshes, and two miles of private beach that surround this pristine retreat. It offers something for everyone...and with 38 oceanfront and creekside homesites available, it won't last long.

Come discover this magnificent, oceanfront island for yourself. You'll find a secluded and unique oceanfront property...at a price you can afford.

Call or write for information and a color brochure.



Jeremy Cay
AT EDINGSVILLE BEACH

One Jeremy Cay
Edisto Island, SC 29438
1-800-475-1556
The Savage Company
LAWRENCE A. SAVAGE, B.I.C.



"The peace of mind I get from CompuSystems is the best testimonial I can give."

R. Bruce Jackson II, M.D., Boone, NC

Computer systems to fit your needs

"I first read an ad for CompuSystems on the back of this same journal. At the time, I had an older computer system that just wasn't meeting my needs. Then I learned that a change in the system to allow electronic filing would be quite expensive without really improving it.

"We invited a CompuSystems salesman by. His demonstration of the system in my office showed me that the enthusiastic references I'd heard weren't just hype. He took time to get to know our practice, and he helped us decide on a configuration that suits our needs. No pressure, just a responsive professional who answered all our questions."

Software that inspires confidence

"Now that we're using the system, I find I'm no longer worrying about the billing

and collections in my office. The age of my receivables has been dramatically reduced. I can design my own reports to extract almost any information from the system. Most of all, I'm confident that the business side of my practice is under control."

Gaining peace of mind

"The peace of mind I get from CompuSystems is the best testimonial I can give. It's an investment that allows me to focus on practicing medicine, instead of on the business of medicine.

"If you'd like to hear more, please feel free to call me or drop by."

- *More physicians in North and South Carolina choose CompuSystems' Medical Insurance Processing and Billing System than any other.*
- *Electronic filing directly to North Carolina Medicare, Medicaid, and BC/BS with no per-claim charges.*
- *Features to maximize return, improve cash flow, and increase productivity.*
- *"One-call" total system support, including on-site hardware service.*

R. Bruce Jackson II



CompuSystems
INC.

Call now for details: 800-800-6472

